



**Karmaveer Bhaurao Patil University, Satara**

**Syllabus for**

**B. Sc. I Forensic Science**

**Under**

**Faculty of Science and Technology**

**(As per NEP 2020)**

**With effect from Academic Year 2024-2025**

## **Structure of the Course:**

### **1. TITLE: B. Sc. FORENSIC SCIENCE**

### **2. YEAR OF IMPLEMENTATION: 2024-25**

### **3. PREAMBLE:**

This syllabus is framed to give sound knowledge with understanding of Forensic Science to undergraduate students. The goal of the syllabus is to make the study of Forensic Science popular, interesting and encouraging to the students for higher studies including research.

Forensic science, an intricate and indispensable field, stands as the intersection of science, law, and justice. With its roots dating back centuries, forensic science has evolved into a multidisciplinary domain dedicated to uncovering the truth, elucidating mysteries, and ensuring fairness in the judicial system. In the pursuit of truth, forensic scientists employ a wide range of specialized tools and technologies, from microscopes and chromatography instruments to DNA profiling and digital forensics. They delve into the intricate details of crime scenes, scrutinize patterns, reconstruct events, and untangle complex puzzles to piece together an accurate and comprehensive picture of events.

The contributions of forensic science extend beyond the confines of the laboratory and crime scenes. Forensic experts may testify in court, offering their scientific expertise to help the legal system understand the significance of evidence and the implications it holds for the case at hand. They bridge the gap between science and the law, translating technical jargon into accessible language, and shedding light on the intricacies of complex scientific concepts for judges, juries, and legal professionals. The importance of forensic science cannot be overstated. It plays a vital role in promoting justice, safeguarding innocent lives, and ensuring the guilty are held accountable. It seeks to provide answers to the unresolved questions, to bring closure to grieving families, and to uphold the principles of truth, integrity, and fairness within society.

The syllabus is prepared after discussion at length with a number of faculty members of the subject and experts from Government and private sectors and research fields. The units of the syllabus are well defined, taking into consideration the level and capacity of students.

#### **4. GENERAL OBJECTIVES:**

- 1) Apply scientific knowledge and methodologies to investigate and analyze evidence in order to uncover the truth, establish facts, and assist in the administration of justice.
- 2) Provide accurate, reliable, and unbiased scientific information that can be used in legal proceedings.
- 3) To expose the students to various emerging areas of Forensic Science.
- 4) To prepare students for further studies, helping in their bright career.

#### **5. Program Outcomes:**

- 1) The student will graduate with proficiency in forensic Science.
- 2) The students will be eligible to continue higher studies in the subject.
- 3) The students will be eligible to pursue higher education abroad.
- 4) The students will be eligible to appear for the examination for a job in the government sector.
- 5) The students will be eligible to appear for jobs with minimum requirement for B.Sc. program.

#### **6. PROGRAM SPECIFIC OBJECTIVES**

- 1) The students are expected to understand the fundamentals, principles, concepts and recent developments in Forensic Science.
- 2) The practical course is framed in relevance with theory courses to improve understanding of various concepts in Forensic Science.
- 3) It is expected to inspire and boost interest of students in Forensic Science.

## **7. PROGRAM SPECIFIC OUTCOMES**

- 1) Understand basics of Forensic Science.
- 2) Learn, design and perform experiments in the labs to demonstrate the concepts, principles and theories learnt in the classroom.
- 3) Develop the ability to apply the knowledge acquired in the classroom and laboratories to specific problems in theoretical and experimental Forensic Science.
- 4) Identify the area of interest in academic research and development.
- 5) Perform jobs in various fields like banking, private investigative agencies, and research labs and in the field of Government sectors, cyber security, Insurance frauds, and pharmaceuticals.
- 6) Be an entrepreneur with precision, analytical mind, innovative thinking, and clarity of thought, expression and systematic approach.

**8. DURATION:** One year.

**9. EXAM PATTERN:** Pattern of examination will be semester wise.

**10. MEDIUM OF INSTRUCTION:** English.

**11. EXAMINATION STRUCTURE:** As per university guidelines

**12. STRUCTURE OF COURSE:**

Semester	Course	Name of the course	Paper Code	Name of the paper	Credits	
I	Course 1	DSC-I	BFST111	Basics of Forensic Science I	2	
		DSC-II	BFST112	Basics of Computer and Digital Forensics I	2	
		DSC-(P) I	BFSP113	Laboratory Exercises in Basics of Forensic Science I and Digital Forensics I	2	
	Course 2	DSC-I	BFST114	Basics of Forensic Chemistry I and Forensic Physics I	2	
		DSC-II	BFST115	Basics of Forensic Biology I and Forensic Psychology I	2	
		DSC-(P) I	BFSP116	Laboratory Exercises in Basics of Forensic Chemistry and Physics I and Basics of Forensic Biology and Psychology I	2	
	Course 3	DSC-I	BFST117	Criminology I	2	
		DSC-II	BFST118	Law I	2	
		DSC-(P) I	BFSP119	Laboratory Exercises in Criminology I and Law I	2	
	Open Elective	OE-1	BFSTOE 1	Introduction to Psychology	2	
	IKS-1	Generic	BFSTIKS 1	Introduction to Indian Knowledge System	2	
	<b>TOTAL</b>					22
	II	Course 1	DSC-III	BFST121	Basics of Forensic Science II	2
DSC-IV			BFST122	Basics of Computer and Digital Forensics II	2	
DSC-(P) II			BFSP123	Laboratory Exercises in Basics of Forensic Science II and Digital Forensics II	2	
		DSC-III	BFST124	Basics of Forensic Chemistry II and Forensic Physics II	2	

	Course 2	DSC-IV	BFST125	Basics of Forensic Biology II and Forensic Psychology II	2
		DSC-(P) II	BFSP126	Laboratory Exercises in Basics of Forensic Chemistry and Physics II and Basics of Forensic Biology and Psychology II	2
	Course 3	DSC-III	BFST127	Criminology II	2
		DSC-IV	BFST128	Law II	2
		DSC-(P) II	BFSP129	Laboratory Exercises in Criminology II and Law II	2
	Open Elective	OE-2	BFSTOE 2	Biopsychology	2
	VEC-1	DEIC	BFSTVEC 1	Democracy, Election and Indian Constitution	2
	<b>TOTAL</b>				

### 13. EVALUATION STRUCTURE: SEMESTER I:

Course Name	Course Code	Internal Evaluation			ESE	Total Marks	Credits
		CCE-I	Mid - Semester	CCE-II			
Descriptive Statistics – I	BST 111	5	10	5	30	50	2
Elementary Probability Theory	BST 112	5	10	5	30	50	2
Practical Course – I	BSP 113	--	--	--	50	50	2

### SEMESTER II:

Course Name	Course Code	Internal Evaluation			ESE	Total Marks	Credits
		CCE-I	Mid - Semester	CCE-II			

Descriptive Statistics – II	BST 121	5	10	5	30	50	2
Discrete Probability Distributions	BST 122	5	10	5	30	50	2
Practical Course – II	BSP 123	--	--	--	50	50	2

#### 14. OTHER FEATURES:

(A) LIBRARY :

Reference Books – Latest Editions, Journals and Periodicals.

(B) SPECIFIC EQUIPMENTS NECESSARY TO RUN THE COURSE: OHP, Computer, L.C.D. Projector.

(C) INTERNET

(D) LIST OF THE LABORATORY EQUIPMENTS:

INSTRUMENTS	INSTRUMENTS	INSTRUMENTS
Colorimeter	Glassware	Soxhlet extraction apparatus.
Spectrophotometer	Chromatographic jar	Micropipettes
pH meter	Chromatography column	LASER
Electrophoresis apparatus	CSI Kit	Sonometer
Computer with printer & internet	CSI Management Kit	Electromagnetic device
Water bath	Fingerprint development kit	Travelling Microscope
Incubator	Fingerprint collection kit	Polarimeter
Oven	Blood detection Kit	Logic gate Kit

Balance	Semen detection Kit	Bridge rectifier
Centrifuge machine	GSR detection Kit	OS forensic

**SEMESTER – I**

**Course – I**

**BFST 111: Basics of Forensic Science I**

**Credit: 02      Lectures: 30 Hours**

**Course Objectives:** Students should be able to...

1. understand the basic concepts in Forensic Science.
2. recognize the major contributors to the development of forensic science.
3. study the Organization of a Crime Laboratory.
4. learn about the scope of forensic science.

<b>Credits 2</b>	<b>SEMESTER– I</b> <b>Course I : BFST 111 Basics of Forensic Science</b>	<b>No. of hours per unit</b>
<b>UNIT – I</b>	<b>INTRODUCTION TO FORENSIC SCIENCE</b>	<b>(07)</b>
	1.1 Definition and Scope of Forensic Science 1.2 History and Development of Forensic Science 1.3 Principles of forensic science 1.4 Terminologies in forensic science: First responder 1.5 chain of custody 1.6 Duties of First Responding officers.	
<b>UNIT – II</b>	<b>BRANCHES OF FORENSIC SCIENCE LABORATORIES I</b>	<b>(07)</b>
	2.1 Forensic Biology 2.2 Forensic Chemistry 2.3 Forensic Toxicology 2.4 Forensic Physics 2.5 Forensic Ballistics 2.6 Forensic Psychology.	
<b>UNIT – III</b>	<b>BRANCHES OF FORENSIC SCIENCE LABORATORIES II</b>	<b>(08)</b>



	3.1 Computer Forensics 3.2 DNA and serology 3.3 Narcotics Unit 3.4 Forensic Anthropology 3.5 Fingerprints analysis 3.6 Questioned Document examination 3.7 Forensic Audio Analysis.	
<b>UNIT – IV</b>	<b>ORGANIZATION OF FORENSIC SCIENCE LABORATORY</b>	<b>(08)</b>
	4.1 Forensic Science Laboratories in India: history, development and hierarchical set up 4.2 Directorate of Forensic Science Services 4.3 Central Forensic Science Laboratories 4.4 State Forensic Science Laboratories 4.5 Regional Forensic Science Laboratories 4.6 Mobile Crime Laboratories Introduction to Various Institutions: IITR, CCMB, CDFD, NCRB, CDTS.	

**Course Outcomes:** The students will be able to...

1. differentiate laws of forensic science.
2. utilize the history and development of Forensic science.
3. differentiate the branches of forensic Science.
4. describe about the agencies involved in crime scene investigation.

**REFERENCE BOOKS:**

1. Saferstein R. *Criminalistics An Introduction to Forensic Science*, 13th edition, Pearson , Pearson Education. (2020)
2. Sharma B.R. *Forensic Science in Criminal Investigation and Trial*, Fifth edition, Universal Law Publishing - An imprint of LexisNexis, (2014)
3. Cyril H. Wecht and John T. Rago, *Forensic Science and Law: Investigative Applications in Criminal, Civil, and Family Justice*, Boca Raton, FL: CRC Press, (2014).
4. Fisher, Barry A. *Techniques of Crime Scene Investigation*. 9th ed. Boca Raton, FL: CRC Press, (2013)
5. James, Stuart H. *Forensic Science: An Introduction to Scientific and Investigative Techniques*

- 3rd ed. London: CRC Press, 2009.
6. Stuart H.J. Nordby J.J. & Suzanne B. *Forensic Science: An Introduction to Scientific and Investigative Techniques*. USA, Tayler and Francis. (2005).
  7. James, S.H. and Nordby, J.J. *Forensic Science: An Introduction to Scientific and Investigative Techniques*. CRC Press: USA; (2003).
  8. Nanda, B.B. and Tiwari, R.K. *Forensic Science in India- A Vision for the Twenty First Century*. Select Publisher: New Delhi; (2001).
  9. Saferstein, R. *Criminalistics -An Introduction to Forensic Science*. Prentice Hall Inc: USA; (1995)
  10. O'Hara, Charles E., and Fred E. Osterberg. *An Introduction to Criminalistics*. USA, The Macmillan Company (1949).

## SEMESTER – I

### Course –I

#### BFST 112: Basics of Computer and Digital Forensics I

**Credit: 02      Lectures: 30 Hours**

**Course Objectives:** Students should be able to...

1. gain knowledge of the overview of Digital & Cyber Forensic and its applications.
2. learn basics of operating system, networking, file system.
3. categorize the types of digital crimes and vulnerability.
4. comprehend the basic tools and Software required for analysis of Cybercrimes.

<b>Credits 2</b>	<b>SEMESTER – I Course – I BFST 112: Basics of Computer and Digital Forensics I</b>	<b>No. of hours per unit</b>
<b>UNIT – I</b>	<b>FUNDAMENTALS OF COMPUTERS</b>	<b>(09)</b>
	1.1 Basics of Computers: Computer organization, 1.2 Input and Output devices, 1.3 Central Processing Unit, 1.4 Types of Memory – RAM, ROM etc. 1.5 Understanding working of internal and external Storage devices. 1.6 Memory units, memory structure and management	
<b>UNIT – II</b>	<b>BASICS OF OPERATING SYSTEM</b>	<b>(08)</b>
	2.1 Introduction to Operating System 2.2 Process management 2.3 Concurrency 2.4 Scheduling 2.5 Synchronization, 2.6 Examples of operating Systems – Windows and Dos, Linux. 2.7 Types of Computers, Internal and external parts of computers - connectors, sockets etc.	
<b>UNIT – III</b>	<b>BASICS OF NETWORKING</b>	<b>(07)</b>
	3.1 Basics of Networking-Types of topologies, 3.2 LAN, MAN, WAN, SAN, CAN etc. 3.3 Types of internet connections (Dialup, DSL, Cable, broadband, leased line, satellite, Wi-Fi, 3G-4G) 3.4 ISP, IP grouping.	

<b>UNIT - IV</b>	<b>BASICS OF INTERNET</b>	<b>(06)</b>
	4.1 Introduction to Internet web and cloud based application 4.2 World Wide Web 4.3 E-mails 4.4 Chat 4.5 Search Engines 4.6 Types of portals 4.7 Networking Protocols.	

**Course Outcomes:** The students will be able to...

1. define the basic concepts related to Networking.
2. explain the Networking & Its types.
3. describe the types of Internet Connections.
4. discuss technology related Networking.

**REFERENCE BOOKS:**

1. Singh P.K. *Introduction To Computer Networks*, VK Global Publications Pvt Ltd; 2020th edition (2020)
  2. Miller Michael. *Computer basic Absolute Beginner's* 9th Edition Pearson Publication,(2020)
  3. Singh P K. *Basic of Computer*,V k Global Publication (2015 )
  4. Thareja Reema. *Fundamentals of Computer*, Oxford Publication (2014)
  5. Sammons, John. *The Basics of Digital Forensics: The Primer for Getting Started in Digital Forensics*. Waltham, MA: Syngress, (2014)
  6. Morley D. *Understanding Computers today & tomorrow* 14th Edition : Cengage Learning Publication : Feb 2012
  7. Casey, Eoghan. *Digital Evidence and Computer Crime: Forensic Science, Computers, and the Internet*. 3rd ed. Amsterdam: Academic Press, (2011)
  8. Joshi Rajmohan. *Introduction to Computers*, Delhi, Isha Books Publication, Page No (1-22) (2006)
  9. Dr. Joshi R. C. *Basic operating system*, Dream tech Press Publication, (2005)
- Prof. S. Venkatachalam. *Introduction to Computers*, New Delhi, Educational Publisher, (1999)

# PRACTICAL COURSE I

COURSE CODE: BFSP 113

Laboratory exercises in Basics of Forensic Science I and Basics of  
Computer and Digital Forensics I

Credit: 02

Practical: 60 Hours

**SEMESTER – I**  
**Lab Course I: BFSP 113: (Based on BFST 111 and BFST 112)**  
**List of Practical**

**Course Objectives:** Students should be able to...

1. study the principles of forensic science.
2. understand the development and hierarchical set up of Laboratories.
3. learn about Creation & Sending about email.
4. learn & Understand use of Microsoft Office suite.

<b>Credits 2</b>	<b>SEMESTER – I</b> <b>Lab Course I: BFSP 113 : (Based on BFST 111 and BFST 112)</b> <b>List of Practical</b>	<b>No. of</b> <b>hours per</b> <b>Practical</b> <b>(60 hrs)</b>
1	To study the principles of Forensic Science.	
2	To gain and understand the First responding officer duties.	
3	To demonstrate on chain of custody.	
4	To learn the different branches of Forensic Science. (any four branches)	
5	To study the different branches of Forensic Science. (any four branches)	
6	Enhance knowledge of forensic techniques used in specialized fields such as DNA analysis, ballistics, and arson investigation.	
7	To learn the different branches of Forensic Science. (any four branches)	
8	To demonstrate the development and hierarchical set up of Laboratories.	
9	To study the Directorate, Regional and central forensic Science Laboratories.	
10	To learn about the Windows file (creation, modification, deletion, attributes) folder (Creation, nesting, attributes).	
11	To understand LAN-client/server, user creation, password protection.	
12	To use the internet- visiting websites with a given URL, Searching information using Search engines.	

13	To use E-mail, creating e-mail, Sending and Receiving emails with Attachments.
14	To understand Networking commands-like ping, IP-config, with various switches.
15	To tracing E-mail, finding sender's IP address, of received email, tracing route of email Received using tools available on internet, e.g. Visual Trace Route etc.
16	To Work with Ms-office (word, excel, power-point).

**Course Outcomes:** The Students should be able to...

1. analyze principles of forensic science.
2. describe the development and hierarchical set up of Laboratories.
3. operate the Creation & Sending about email.
4. perform the networking Commands.
5. discuss the Microsoft Office suite.

**REFERENCE BOOKS:**

1. Singh P.K. *Introduction To Computer Networks*, VK Global Publications Pvt Ltd; 2020th edition (1 January 2020); VK Global Publications Pvt Ltd : 1 Jan 2020
2. Miller Michael. *Computer basic Absolute Beginner's* Pearson Publication, 9th Edition: 2020
3. Singh P K. *Basic of Computer*, V k Global Publication 2015
4. Thareja Reema. *Fundamentals of Computer*, Oxford Publication : 4 June 2014
5. Lyman M.D. *Criminal Investigation- The Art and the Science*. Pearson Education: India; (2013)
6. Morley D. *Understanding Computers today & tomorrow* 14th Edition : Cengage Learning Publication: Feb 2012
7. Joshi Rajmohan. *Introduction to Computers*, Delhi, Isha Books Publication, 2006 : Page No (1-22)
8. Dr. Joshi R. C. *Basic operating system*, Dream tech Press Publication, 2005
9. James,S.H. and Nordby, J.J. *Forensic Science: An Introduction to Scientific and InvestigativeTechniques*. CRC Press: USA; (2003).
10. Barry, A.J. *Fisher- Techniques of Crime Scene Investigation*, 7th ed. R.C. Press, New York (2003)
11. Sharma, B.R. *Forensic Science in Criminal Investigation and Trails*. Universal Law Publishing: (2003).
12. Meguire, M., Morgan, R. and Reiner, R. *The Oxford Handbook of Criminology*

2nded. Oxford University Press: New York; (2002)

13. Bell, W.R. *Practical Criminal Investigation in Correctional Facilities*. CRC Press: London; (2001).
14. Nanda, B.B. and Tiwari, R.K. *Forensic Science in India- A Vision for the Twenty First Century*. Select Publisher: New Delhi; (2001)
15. Prof. S. Venkatachalam. *Introduction to Computers*, New Delhi, Educational Publisher, 1999
16. Saferstein, R. *Criminalistics -An Introduction to Forensic Science*. Prentice Hall: USA; (1995).
17. Lee Henry. *Crime Scene Handbook*: Henry C Lee.

**SEMESTER– I**  
**Course II**

**BFST 114: Basics of Forensic Chemistry I and Forensic Physics I**

**Course Objectives:** Students should be able to...

1. study the Reactive Intermediate and related reactions.
2. study hybridization and its types.
3. learn the concept of fluid mechanics and related terms.
4. understand the concept and applications of radioactivity.

<b>Credits 2</b>	<b>SEMESTER– I</b> <b>Course II : BFST 114</b> <b>Basics of Forensic Chemistry I and Forensic Physics I</b>	<b>No. of</b> <b>hours per</b> <b>unit</b>
<b>UNIT – I</b>	<b>REACTIVE INTERMEDIATE AND RELATED REACTION</b>	<b>(07)</b>
	1.1 Basics of chemistry 1.2 Reactive Intermediate and related reaction Carbocation Carbanion 1.3 Free radical 1.4 Carbene, Nitrene and Benzene 1.5 Normality and Morality 1.6 Introduction to Chemical compounds - Petroleum Products, Dyes, Drugs, Paints, Polymer, Insecticides, Pesticides.	
<b>UNIT – II</b>	<b>HYBRIDIZATION</b>	<b>(07)</b>

	2.1 Concept of hybridization– Definition 2.2 different types of hybridization 2.3 Geometry of molecules 2.4 Valence Shell Electron Pair Repulsion (VSEPR) Theory. 2.5 Chromatography	
<b>UNIT – III</b>	<b>FLUID MECHANICS</b>	<b>(09)</b>
	3.1 Introduction to fluids 3.2 Pressure in a fluid 3.3 Pascal’s law and Archimedes’ Principle 3.4 Atmospheric Pressure and Barometer 3.5 Buoyant Force , Steady and Turbulent Flow 3.6 Equation of continuity 3.7 Bernoulli’s Principle and Application of Bernoulli’s equation 3.8 Applications of fluid mechanics in Forensic Science	
<b>UNIT – IV</b>	<b>RADIOACTIVITY</b>	<b>(07)</b>
	4.1 Review of nuclear composition 4.2 Nuclear properties and half-life 4.3 Radioactive decay Schemes 4.4 Applications of Radioisotope 4.5 Carbon dating and Radiometric dating.	

**Course Outcomes:** The students will be able to...

1. explain the Reactive Intermediate and related reactions.
2. describe the concept of hybridization, different types of hybridization and their geometry of molecules.
3. discuss the concept of fluid mechanics and related terms.
4. elaborate the concept and applications of radioactivity.

**REFERENCE BOOKS:**

1. Puri, S. Kalia, *Principles of inorganic chemistry*, Milestone publisher, Delhi India., (137-200, 201 – 233 , 313 – 327 ) 2020.
2. J. E. Huheey, *Inorganic Chemistry*, 4th edition, Harper Collins college publishers, (92-134, 300, 538-557, 655, 662 ) (2020)
3. H.C. Verma, *Concepts of Physics*, Bharati Bhavan Publishers , 2017, 255-280
4. M. Boyed, *Organic Chemistry*. Pearson, London, England. (1-39). (2010)
5. G. D. Christian. *Analytical Chemistry* 6th edition, Publisher: Wiley, Hoboken, New Jersey, United States. (555-558) (2007)



6. Shriver and Atkins, *Inorganic Chemistry*, 3rd edition, Great Britain by Oxford University press,
7. W. H. Freeman and Company 41 Madison Avenue, New York, NY 10010. (1-147) (2006) S. Keith, *Mechanics* (Third ed.). (Addison-Wesley, 1971),144-49
8. Puri, S. Pathania, *Principles of Physical Chemistry*, Vishal Publishing House, 44th Edition Jaladhar July 1962, (525-557)
9. Sears and Zeemansky, *University Physics*, XI th edition, Pearson education. 312-320 10. Viscosity of liquids and gases (<http://hyperphysics.phyastr.gsu.edu/Hbase/tables/viscosity.html>)

**SEMESTER I**  
**Course II**  
**BFST 115: Basics of Forensic Biology I and Forensic Psychology I**

- Course Objectives:** Students should be able to... 1.  
 learn the basics and concepts related to Cell biology.
2. classify amino acids, proteins, carbohydrates.
  3. study the science and history of Psychology.
  4. understand the structure and function of neurons in accordance of Behaviour.

Credits 2	SEMESTER – I Minor Course II : BFST 115 Basics of Forensic Biology I and Forensic Psychology I	No. of hours per unit
<b>UNIT I</b>	<b>CELL BIOLOGY:</b>	<b>(07)</b>
	1.1 Origin of life and theories of evolution 1.2 geological time scale 1.3 Discovery of cell and the cell theory 1.4 Ultra structure of prokaryotic & eukaryotic cell 1.5 Structural organization and functions of plasma membrane and cell wall of prokaryotes & eukaryotes 1.6 Cellular Organelles and Cytoskeleton structures.	
<b>UNIT II</b>	<b>BIOCHEMISTRY</b>	<b>(08)</b>
	2.1 Properties and Classification of Amino acids 2.2 Properties and Classification of proteins 2.3 Properties and Classification of enzymes 2.4 Properties and Classification of nucleic acid 2.5 Properties and Classification of carbohydrates 2.6 Properties and Classification of lipids 2.7 Properties and Classification of vitamins.	

<b>UNIT III</b>	<b>THE SCIENCE OF PSYCHOLOGY</b>	<b>(08)</b>
	3.1 What is Psychology – Nature 3.2 Definition and its Goals 3.3 History of Psychology 3.4 Psychology: The Science 3.5 Early Schools of Psychology and Modern Perspectives 3.6 Scientific Study Methods in Psychology- Naturalistic Observation, Experimental Case Studies and Survey.	
<b>UNIT IV</b>	<b>BIOLOGICAL PERSPECTIVES OF BEHAVIOUR</b>	<b>(07)</b>
	4.1 Neurons-structure and function 4.2 synapse and neurotransmitters	
	4.3 Neuron and Nerves; Building the Network 4.4 Central Nervous System and Peripheral Nervous System 4.5 The Brain-structure and function 4.6 Glandular system.	

**Course Outcomes:** The students will be able to...

1. explain theories of evolution.
2. classify carbohydrates, enzymes , proteins, amino acids.
3. define Psychology and explain its modern perspectives.
4. describe the nervous system and its types.

### REFERENCE BOOKS:

1. P. B. Godkar, *Clinical Biochemistry*, third edition (Unit IV), 2018
2. Ciccarelli, S. K. & Meyer G. E., *Psychology* (New Delhi, Pearson Education, 2006), 1304.
3. Edward E. S., Stephen M. K., *Cognitive Psychology Mind and Brain*, (New Delhi, Pearson Education, 17 Aug 2006.)1-30.
4. Nelson and Cox, W.H Freeman, *Lehninger Principles of Biochemistry* 5th ed.(2005).(Unit IV, 239-255,273-279,343-355)
5. P.K Gupta, *Rastogi publications Cell and molecular biology* 3rd ed. (Unit I), 1Dec. 2005.
6. S Chand, *Cell biology, genetics, Molecular biology, evolution and ecology* (1 sep.2004) (Unit 1)
7. Baran R.A. *Psychology*, (New Delhi; Pearson Education Pvt. Ltd. 2001),5-205
8. T. Palmer, Prentice Hall/Ellis Horwood, *Understanding enzymes*, 4th ed. (1995). (Unit IV)

9. Morgan C.T., King R.A., Weisz J.R., Schopler., *Introduction to Psychology* (McGraw Hill Book Co.,1986)
10. Kimble G.A., Garnezy, *Principles of General Psychology*, 3rd ed., New York, 1-90, 1 Jan 1965.

### SEMESTER – I

#### Lab Course II: BFSP 116: (Based on BFST 114 and BFST 115) Laboratory exercises in Basics of Forensic Chemistry I and Forensic Physics I & Basics of Forensic Biology I and Forensic Psychology I

**Course Objectives:** Students should be able to...

1. summarize preparation & standardization of chemical Solutions
2. determine the Young's modulus.
3. study plant and animal cell structure.
4. understand Mitosis.
5. conduct psychological tests.

Credits 2	SEMESTER – I Minor Practical Course - I List of Practical	No. of hours per Practical (60 hrs)
1	Preparation & standardization of H <sub>2</sub> SO <sub>4</sub> solution.	
2	Preparation & standardization of HCl Solution.	
3	Estimation of Acetamide.	
4	To determine the surface tension of given liquid.	
5	Water analysis	
6	Organic Qualitative Analysis (3 Compounds)	
7	To study five basic shapes of hybridization.	
8	Volumetric estimation Of Potassium Permanganate	
9	To determine the Poisson's Ratio of a hollow rubber tube.	
10	To determine Young's modulus(Y) of the wooden bar.	
11	To determine the coefficient of viscosity of water by Poiseuille's methods	
12	To Calibrate a Spectrometer using a mercury source.	
13	To determine the Frequency of A.C. mains by sonometer using a wire of magnetic/non-magnetic material.	
14	To determine refractive index by using liquid lens.	

15	To determine the wavelength of given Laser Source by using plane diffraction grating.	
16	Study of plant and animal cell type's basic structure using micrographs or model.	
17	Study of bacterial cell structure, shape and arrangement using micrographs or models.	
18	Blood as liquid tissue – demonstrating the different types of blood cells	
19	Mitosis demonstrated using onion root tip method.	
20	Studying the different cellular organelles of the eukaryotic and prokaryotic cells with animation and micrographs.	
21	To study the historical perspective of psychology.	
22	How to conduct psychological tests.	
23	Type A/B behaviour patterns- Upinder Dhar & Jain M	
24	Illusion (Muller-Lyre)	

**Course Outcomes:** The students will be able to...

1. prepare & standardize chemical solutions.
2. determine the Young's modulus.
3. draw plant and animal cells structure.
4. demonstrate mitosis using onion root tip method.
5. conduct psychological tests.

**REFERENCE BOOKS:**

1. *Handbook of Media for clinical and public health microbiology* by Ronald Atlas and James W.S., Taylor & Francis Publication, 2013
2. H. Singh and P. S. Hemne *B.Sc. Practical Physics*, S. Chand Publication, (4th edition, 2011) 20-60
3. White and Manning, *Experimental College Physics*, McGraw-Hill Book Company.(3rd edition 2011) 333-340
4. Moris and Boyed, *Organic Chemistry* Pearson, London, England. (1-39) (2010)
5. G. D. Christian *Analytical Chemistry* 6th edition, Publisher: Wiley, Hoboken, New Jersey, United States. (742, 750, 753, 780) (2004)
6. Gupta Kumar. *Heterocyclic chemistry Vol I and Vol II* Springer, Salmon Tower Building New York City, United States. (58,66) (1999)

7. S.B. Karch, *The Pathology of Drug Abuse*, CRC Press, Boca Raton (1996).
8. *Cell biology, genetics, Molecular biology, evolution and ecology*-by P.S.Verma and V.K. Agarwal, S. Chand Publication, 1974.
9. C. L. Arora, *B.Sc. Practical Physics*, (S. Chand Publication, 1957) 69-79
10. Upinder Dhar& Jain M .-*Type A/B behavior patterns*- 11. A.K.P. Sinha & L.N.K. Sinha- *Sinha's Comprehensive Anxiety Test – Illusion (Muller-Lyre) Manual*

**SEMESTER – I**  
**Course III**  
**BFST 117: Criminology I**

- Course Objectives:** Students should be able to... 1.  
learn the basics and concepts related to criminology.
2. classify schools of criminology.
  3. study the crimes in India.

4. understand the nature and scope of criminology.

<b>Credits 2</b>	<b>SEMESTER – I</b> <b>Course III : BFST 117</b> <b>CRIMINOLOGY I</b>	<b>No. of hours per unit</b>
<b>UNIT I</b>	<b>THE CONCEPT OF CRIME</b>	<b>(07)</b>
	Introduction & Definition of Crime – legal and social, Characteristics of Crime Early Concept of Crime- 18 <sup>th</sup> ,19 <sup>th</sup> ,20 <sup>th</sup> Century Classification of Crime- Predatory Crime, Violent Crime, Inchoate Crime, Hate Crime Sin VS Crime, Crime & Morality Crimes in India, Crime against women, Crime against children, Human Trafficking, cybercrimes, crime against persons, crime against property, crime against morality	
<b>UNIT II</b>	<b>NATURE &amp; SCOPE OF CRIMINOLOGY</b>	<b>(08)</b>
	Definition of Criminology, Nature & Scope of Criminology, Importance & objective of Criminology, Intention VS Motive, Criminology – whether a science?, Possibility of Science of Criminology, Criminal Law Nature & Elements, Indian Concept of Criminology, Radical Criminology, Neo- Criminology, Sociological criminology, Criminological psychology, Cultural Criminology.	
<b>UNIT III</b>	<b>SCHOOLS OF CRIMINOLOGY</b>	<b>(08)</b>
	Schools of Criminology (Pre-Classical, Classical, Neo-classical, Positive), Pioneers of Positive School, Clinical School, Sociological School of criminology	
<b>UNIT IV</b>	<b>BIOLOGY AND PSYCHOLOGY OF CRIME</b>	<b>(07)</b>
	Biology & Psychology of crime - Heredity & Crime, Mental Disorder & Criminality, M’ Naghten rule, Insanity, Intelligence Testing & Crime, Freud’s theory of Criminal Behavior, Psychological Concept of Crime, and Conflict theory of Crime. Gender and Crime Modus Operandi – principle, elements of modus operandi, Difference between modus operandi & motive	

**Course Outcomes:** The students will be able to...

1. explain concept of crime.
2. classify schools of criminology.
3. define Psychology and explain its modern perspectives.
4. describe causes of crime.

**REFERENCE BOOKS:**

1. Dr. N.V. Paranjape, *Crimonology & Penology with victimology*, Central law Publication, (7th edition, 2018)
2. Ahmad Siddique, *Criminology & Penology*, Eastern book Co. (6th edition)
3. Advani, Neera, *Crime and Society in India*. New Delhi: Sage Publications, 2010.
4. Chaudhary, Usha, *Criminology and Criminal Justice*. New Delhi: Deep & Deep Publications, 2015.
5. Ishwaran, K. S. *Crime and Society in India*, New Delhi: Prentice-Hall of India, 2002.
6. Singh, R. K. *Indian Criminology*, Allahabad: Allahabad Law Agency, 2008.

**SEMESTER – I**  
**Course III**  
**BFST 118: Law I**

**Course Objectives:** Students should be able to... 1.

learn the basics and concepts related to law.

2. understand the sections of BNS 2023.
3. study the sections of BNSS 2023.
4. describe the sections of BSA 2023.

Credits 2	SEMESTER – I Course III : BFST 118 Law I	No. of hours per unit
<b>UNIT I</b>	<b>INTRODUCTION TO LAW</b>	<b>(07)</b>
	Classification – civil, criminal cases. Substantive Law, Procedural Law. Essential elements of criminal law. Hierarchy of criminal courts. Classification of offences. Constitution of India - Preamble, Fundamental Rights, Directive Principles of State Policy. – Articles 14, 15, 20, 21, 22, 51A	
<b>UNIT II</b>	<b>INTRODUCTION TO BHARATIYA NYAY SANHITA, 2023</b>	<b>(08)</b>

	Salient Features of BNS New/Modified definitions in BNS Offences against woman and child – Sexual offences, criminal force and assault against women Offences affecting the human body – offences affecting life, Criminal force & assault	
<b>UNIT III</b>	<b>INTRODUCTION TO BHARATIYA NAGRIK SURAKSHA SANHITA, 2023</b>	<b>(08)</b>
	Salient Features of BNSS Organization setup of courts in india, cognizable, non-cognizable offences bailable, non bailable offences compoundable, non-compoundable offences complaint, FIR, Investigation, Charge Sheet, Arrest & bail procedure, Search and Seizure, Arrest, Trial, Inquest, Victim compensation	
<b>UNIT IV</b>	<b>INTRODUCTION TO BHARATIYA SAKSHYA ADHINIYAM, 2023</b>	<b>(07)</b>
	Salient Features of BSA Evidence, types of evidences - primary and secondary Opinion of Experts, Expert witness. Examination Of Witnesses, Cross examination and re-examination of witnesses Relevancy Of Facts Facts Which Need Not Be Proved Oral Evidence Documentary Evidence The Burden Of Proof	

**Course Outcomes:** The students will be able to...

1. understand the fundamental principles, elements of criminal law
2. Apply the BNS to various criminal scenarios.
3. elaborate the sections of BNSS 2023.
4. understand the sections of BSA 2023.

**REFERENCE BOOKS:**

1. Bharatiya Nyay Sanhita, 2023 Bare Act
2. Bharatiya Nagrik Suraksha Sanhita, 2023 Bare Act
3. Bharatiya Sakshya Adhinyam, 2023 Bare Act



4. Prof. Vageshwari Deswal, Adv. Saurabh Kansal, *Taxmann's Law & Practice Series – BNS, BNSS, BSA*, The Corstone Publication, 2024
5. Srivastava, A. N. *Principles of Criminal Law*. Allahabad: Central Law Publications, latest edition.

### SEMESTER – I

#### **Lab Course III: BFSP 119: (Based on BFST 117 and BFST 118) Laboratory exercises in Criminology I Criminal Law I**

**Course Objectives:** Students should be able to...

1. learn various forms of crime
2. understand the Indian police System
3. describe concept of criminology.
4. conduct crime analysis.

Credits 2	SEMESTER – I Practical Course - III List of Practical	No. of hours per Practical (60 hrs)
1	Understand the concept of cyber criminology.	
2	To study socio economic crimes.	
3	To understand various forms of crime.	
4	Understand the Structure of State police System.	
5	Understand the structure of Police Commissionerate System.	
6	Learn basic functions and duties of police.	
7	Field visit to any of the following criminal justice administrations – police station/ magistrates court/crime record bureau, forensic science labs.	
8	To understand the significance of different records maintained at the police station.	
9	Compare important sections of BNS with IPC	
10	Compare important sections of BNSS with CrPC	
11	Compare important sections of BSA with IEA	
12	To prepare a schedule of five cognizable and five non-cognizable offences	

13	To study the powers and limitations of the Court of Judicial Magistrate of First Class	
14	To study a crime case in which an accused was punished on charge of murder	
15	To study a crime case in which an accused was punished on charge of Rape	
16	To study a Hit & Run case	

**Course Outcomes: The students will be able to...**

1. analyze relationship between crime & society 2. elaborate the Indian police System
3. understand concept of criminology.
4. conduct crime analysis.

**REFERENCE BOOKS:**

1. Dr. N.V. Paranjape, *Crimonology & Penology with victimology*, Central law Publication, (7th edition, 2018)
2. Ahmad Siddique, *Criminology & Penology*, Eastern book Co. (6th edition)
3. Ishwaran, K. S. *Crime and Society in India*, New Delhi: Prentice-Hall of India, 2002.
4. Singh, R. K. *Indian Criminology*, Allahabad: Allahabad Law Agency, 2008.

**SEMESTER– I**

**Open Elective – I**

**BFSTOE1: Introduction to Psychology**

**Course Objectives- Students should be able to...**

1. learn about the contributions of some of the early pioneers in psychology.
2. study the memory in terms of information processing and distinguish between sensory, short- term, and long term memory.
3. gain knowledge of the role of emotions, motivation, and personality in human behavior.
4. understand the physiological changes that occur during emotional arousal and the relationship between arousal and performance.

Credits 2	SEMESTER– I BFSTOE1 INTRODUCTION TO PSYCHOLOGY	No. of hours per unit
<b>UNIT- I</b>	<b>INTRODUCTION TO FORENSIC SCIENCE</b>	<b>(08)</b>
	1.1. Definition of Psychology. 1.2. History of psychology. 1.3. Field of Psychology. 1.4. Scientific research.	
<b>UNIT – II</b>	<b>LEARNING</b>	<b>(08)</b>
	2.1. Definition of Learning. 2.2. Classical Conditioning. 2.3. Operant Conditioning. 2.4. Observational Learning.	
<b>UNIT– III</b>	<b>MEMORY</b>	<b>(08)</b>
	3.1. What Is Memory?, Memory process. 3.2. Information-Processing Model. 3.3. Types of memory. 3.4. Forgetting.	
<b>UNIT– IV</b>	<b>MOTIVATION AND EMOTION</b>	<b>(08)</b>
	1.1. Defining Motivation. 1.2. Theories of motivation. 1.3. The Three Elements of Emotion. 1.4. Early Theories of Emotion.	

**Course Outcomes:** After completion of the units students will be able to...

1. demonstrate understanding of the terminology used in psychology
2. demonstrate an understanding of the general history of the field of psychology
3. acquire knowledge of branches of psychology.
4. identify research models and relate the findings of research to life situations.

### Reading Book

1. Ciccarelli Sandra K., White J. Noland. *Psychology*, Pearson Education, 2018.

**REFERENCE BOOKS:**

1. Myers, D. G. *Psychology*. 10th edition; International edition. New York: Worth Palgrave Macmillan, Indian reprint 2013.
2. Lahey, B. B. *Psychology: An Introduction*, 11th edit. New York: McGraw-Hill Publications, (2012).
3. Feldman Robert S. *Understanding Psychology*, McGraw-Hill, 2011.
4. Baron, R. A., & Kalsher, M. J. *Psychology: From Science to Practice*. (2nd ed.). Pearson Education inc., Allyn and Bacon (2008).
5. Morgan Clifford T., King Richard A., Weisz John R., Schopler John. *Introduction to Psychology*, New Delhi, McGraw Hill Education (India) Private Limited, 1986

**SEMESTER II****COURSE - I****BFST 121: BASICS OF FORENSIC SCIENCE II****Credit: - 02      Lectures: 30 Hours****Course Objectives:** Students should be able to...

1. study the crime scene investigative agencies.
2. understand the investigative agencies working process.
3. learn the types and powers of court.
4. acquire the basic concepts of laws related to forensic science.

<b>Credits 2</b>	<b>SEMESTER – II Course I : BFST 121 BASICS OF FORENSIC SCIENCE II</b>	<b>No. of hours per unit/credits</b>
<b>UNIT: I</b>	<b>AGENCIES INVOLVED IN CRIME DETECTION AND INVESTIGATION I</b>	<b>(08)</b>
	1.1 Functions and hierarchical set up of Law enforcement agencies 1.2 civil police 1.3 reserve police 1.4 Government Examiners of Questioned Documents 1.5 Fingerprint Bureaus 1.6 National Crime Records Bureau 1.7 Police & Detective Training Schools 1.8 NICFS.	
<b>UNIT: II</b>	<b>AGENCIES INVOLVED IN CRIME DETECTION AND INVESTIGATION II</b>	<b>(08)</b>
	2.1 Bureau of Police Research & Development 2.2 National and State Police Academies 2.3 Police Training Schools/Colleges 2.4 Dog Squad 2.5 Bomb Detection and Defusal Squad	

	2.6 RAW, CBI, INTERPOL and FBI.	
<b>UNIT: III</b>	<b>JUDICIAL SYSTEM</b>	<b>(08)</b>
	3.1 Courts: Types, powers and jurisdiction 3.2 Admissibility of evidence in Courts 3.3 Definition of Experts 3.4 Provisions in Cr.P.C.,1973 & Indian Evidence Act relating to experts & their report 3.5 Court Procedures pertaining to Expert Testimony & Witness	
<b>UNIT: IV</b>	<b>INTRODUCTION TO LAW</b>	<b>(08)</b>
	4.1 Meaning, Nature and Importance of Law 4.2 Classification of Law 4.3 Basics of Indian Constitution 4.4 Basics of Criminal Law 4.5 Elements of Criminal Law 4.6 Classification Offences	

**Course Outcomes: The students will be able to...**

1. describe about the agencies involved in crime scene investigation .
2. analyze the investigative agencies and their process.
3. explain the setup of the judicial system.
4. discuss the basic concepts of law related to forensic science.

**REFERENCE BOOKS:**

1. Gandhi B M. *Penal Law*, Eastern Book Company, (2023)
2. Jain M.P. *Indian Constitutional Law*, LexisNexis (2018)
3. Lyman M.D. *Criminal Investigation- The Art and the Science*. Pearson Education: India; (2013)
4. Sarthi V. P., *Law of Evidence*, 6thEdition, Eastern Book Co., Lucknow (2006).
5. James, S.H. and Nordby, J.J. *Forensic Science: An Introduction to Scientific and Investigative Techniques*. CRC Press: USA; (2003).
6. Sharma, B.R. *Forensic Science in Criminal Investigation and Trails*. Universal Law Publishing: (2003).
7. Barry, A.J. *Fisher- Techniques of Crime Scene Investigation*, 7th ed. R.C. Press, New York (2003)
8. Meguire, M., Morgan, R. and Reiner, R. *The Oxford Handbook of Criminology* 2nded. Oxford University Press: New York; (2002)

9. Monir M., *Law of Evidence*, 6 th Edition, Universal Law Publishing Co. Pvt. Ltd., New Delhi (2002).
10. Nanda, B.B. and Tiwari, R.K. *Forensic Science in India- A Vision for the Twenty First Century*. Select Publisher: New Delhi; (2001)
11. Bell, W.R. *Practical Criminal Investigation in Correctional Facilities*. CRC Pres: London; (2001).
12. Bronstein D.A. *Law for the Expert Witness*, C R C Press, Boca Raton (1999).
13. Saferstein, R. *Criminalistics -An Introduction to Forensic Science*. Prentice Hall: USA; (1995).
14. Mahajan V.D. *Jurisprudence*, Eastern Book Company, (1993)
15. Pillai A.S. *Criminal Law*, 6thEdition, N.M. Tripathi Pvt. Ltd., Mumbai (1983).
16. Nigam R.C. *Law of Crimes in India*, Volume I, Asia Publishing House, New Delhi (1965).
17. Lee Henry. *Crime Scene Handbook*: Henry C Lee.

**SEMESTER – II**  
**COURSE I**  
**BFST 122: BASICS OF COMPUTER AND DIGITAL FORENSICS II**

**Credit: 02      Lectures: 30 Hours**

**Course Objectives:** Students should be able to...

1. study the basics of network security.
2. learn the overview of Digital & Cyber Forensic and its applications.
3. understand the basic digital forensics and techniques for conducting the forensic examination on different digital devices.
4. examine the digital evidence such as data acquisition, identification analysis.

<b>Credits 2</b>	<b>SEMESTER – II</b> <b>COURSE – I</b> <b>BFST 122: BASICS OF COMPUTER AND DIGITAL FORENSICS</b> <b>II</b>	<b>No. of hours</b> <b>per</b> <b>unit/credits</b>
<b>UNIT: I</b>	<b>NETWORK SECURITY</b>	<b>(08)</b>
	1.1 Network Security Threats 1.2 Vulnerabilities 1.3 Access control 1.4 Virus 1.5 Trojans 1.6 Security plan and policies.	
<b>UNIT:II</b>	<b>CYBER CRIMES AND DIGITAL EVIDENCE</b>	<b>(08)</b>
	2.1 What is cyber crime 2.2 Types of cyber crimes 2.3 Digital evidence 2.4 Digital vs Physical Evidence 2.5 Nature of Digital Evidence 2.6 Precautions while dealing with Digital Evidence.	
<b>UNIT: III</b>	<b>Computing Investigations</b>	<b>(07)</b>
	3.1 Understanding Computing Investigations 3.2 Procedure for corporate High-Tech investigations 3.3 Understanding data recovery 3.4 workstation 3.5 software conducting investigations.	
<b>UNIT: IV</b>	<b>CRIMES AND INCIDENT SCENES</b>	<b>(07)</b>
	4.1 Processing crimes and incident scenes 4.2 Securing a computer incident or crime	

	4.3 Seizing digital evidence at scene	
	4.4 Storing digital evidence 4.5 Obtaining digital hash Reviewing case.	

**Course Outcomes: The students will be able to...**

1. explain the basics of network security.
2. analyze the overview of Digital & Cyber Forensic and its applications.
3. perform the basic digital forensics and techniques for conducting the forensic examination on different digital devices.
4. discuss the digital evidences such as the data acquisition, identification analysis.

**REFERENCE BOOKS:**

1. Singh P.K. *Introduction To Computer Networks*, VK Global Publications Pvt Ltd; 2020th edition (1 January 2020); VK Global Publications Pvt Ltd : 1 Jan 2020
2. Miller Michael. *Computer basic Absolute Beginner's* Pearson Publication, 9th Edition: 2020
3. Singh P K. *Basic of Computer*, V k Global Publication 2015
4. TharejaReema. *Fundamentals of Computer*, Oxford Publication : 4 June 2014
5. Morley D. *Understanding Computers today & tomorrow* 14th Edition : Cengage Learning Publication : Feb 2012
6. Nelson, B, Phillips, A, Enfinger, F, Stuart, C., *Guide to Computer Forensics and Investigations*, 2nd ed., Thomson Course Technology, 2006, ISBN: 0619-21706-5.
7. Joshi Rajmohan. *Introduction to Computers*, Delhi, Isha Books Publication, 2006 : Page No (1-22)
8. Dr. Joshi R. C. *Basic operating system*, Dream tech PressPublication,2005
9. Vacca, J, *Computer Forensics, Computer Crime Scene Investigation*, 2nd Ed, Charles River Media, 2005, ISBN: 1-58450-389.
10. Warren G. Kruse II and Jay G. Heiser, *Computer Forensics: Incident Response Essentials*, Addison Wesley, 2002.
11. Prof. S. Venkatachalam. *Introduction to Computers*, New Delhi, Educational Publisher, 1999



## SEMESTER – II

### PRACTICAL COURSE I: BFSP 123 (BASED ON BFST 121 AND BFST 122)

### LABORATORY EXERCISES IN BASICS OF FORENSIC SCIENCE II AND BASICS OF COMPUTER AND DIGITAL FORENSICS II

**Credit: 02**

**Practical: 60 Hours**

**Course Objectives:** Students should be able to...

1. study the hierarchical set up of Law enforcement agencies.
2. study the annual reports of the National Crime Records Bureau.
3. learn to write reports on different types of crime cases.
4. learn about Creating & Sending email.

<b>Credits 2</b>	<b>SEMESTER – I LAB COURSE I: BFSP 123 : (BASED ON BFST 121 AND BFST 122) LIST OF PRACTICAL</b>	<b>No. of hours per Practical (60 hrs)</b>
1	To study the hierarchical set up of Law enforcement agencies.	
2	To analyze statistical data of the National Crime Records Bureau regarding various crimes.	
3	To study the history of crime cases from a forensic science perspective.	
4	To Review The sections of forensic science at INTERPOL and compare with those in Central Forensic Science Laboratories in India.	
5	To study the annual reports of the National Crime Records Bureau and depict the data on different types of crime cases by way of smart art/templates.	
6	To write reports on different types of crime cases.	
7	To prepare a schedule of five cognizable and five non-cognizable offences	
8	To study the powers and limitations of the Court of Judicial Magistrate of First Class.	
9	To study a crime case in which an accused was punished on charge of murder under Section 302.	
10	Use of E-mail, creating e-mail, Sending and Receiving emails with Attachments	
11	Networking commands-like ping, IP-configuration, etc, with various switches.	
12	Tracing E-mail, finding sender's IP address, of received email, tracing route of email Received using tools available on internet, e.g. Visual Trace Route etc.	
13	Working with Ms-office (word, excel, power-point).	

14	Understanding the working of Firewall.
15	To understand the Cyber Crime Investigation Process: Forensics Readiness, Warrants and Secure the crime scene, Collect the evidence, secure the Evidence.
16	To understand the Searching and Seizing of Evidences.

**Course Outcomes: The students should be able to...**

1. discuss the hierarchical set up of Law enforcement agencies.
2. write reports on different types of crime cases.
3. explain the working process of the National Crime Records Bureau and INTERPOL.
4. perform a cybercrime investigation process.

**REFERENCE BOOKS:**

1. Gandhi B M. *Penal Law*, Eastern Book Company, (2023)
2. Jain M.P. *Indian Constitutional Law*, LexisNexis (2018)
3. W.J.Tilstone, M.L.Hastrupand C. Hald, Fisher's. *Techniques of Crime Scene Investigation*, CRC Press, Boca Raton (2013).
4. Sarthi V. P., *Law of Evidence*, 6thEdition, Eastern Book Co., Lucknow (2006).
5. S.H.James and J.J.Nordby, *Forensic Science: An Introduction to Scientific and Investigative*, 2<sup>nd</sup> Edition, CRC Press, Boca Raton (2005).
6. R.Saferstein, *Criminalistics*, 8<sup>th</sup> Edition, Prentice Hall, New Jersey (2004).
7. M.K. Bhasinand S.Nath, *Role of Forensic Science in the New Millennium*, University of Delhi, Delhi (2002).
8. Monir M., *Law of Evidence*, 6 th Edition, Universal Law Publishing Co. Pvt. Ltd., New Delhi (2002).
9. B.B. Nandaand, R.K.Tiwari, *Forensic Science in India: A Vision for the Twenty First Century*, Select Publishers, New Delhi (2001).
10. Bronstein D.A. *Law for the Expert Witness*, C R C Press, Boca Raton (1999).
11. W.G. Eckert and R.K. Wright. *Introduction to Forensic Sciences*, 2<sup>nd</sup> Edition, W.G. Eckert (ED.), CRC Press, Boca Raton (1997).
12. Mahajan V.D. *Jurisprudence*, Eastern Book Company, (1993)
13. Pillai A.S. *Criminal Law*, 6thEdition, N.M. Tripathi Pvt. Ltd., Mumbai (1983).

14. Nigam R.C. *Law of Crimes in India*, Volume I, Asia Publishing House, New Delhi (1965).

**SEMESTER – II**  
**Course II**  
**BFST 124: BASICS OF FORENSIC CHEMISTRY II AND**  
**FORENSIC PHYSICS II**

**Course Objectives:** Students should be able to...

1. learn the importance of chemical kinetics.
2. learn the laws of Thermodynamics.
3. understand basics and applications of LASER in forensic science.
4. study the basic concept of Optics.

Credits 2	SEMESTER – II Minor Course II : BFST 124 Basics of Forensic Chemistry II and Forensic Physics II	No. of hours per unit/credits
<b>UNIT: I</b>	<b>CHEMICAL KINETICS</b>	<b>(07)</b>
	1.1 Introduction and Rate of reaction 1.2 Definition and units of rate constant 1.3 Factors affecting rate of reaction 1.4 Order and Molecularity of reaction 1.5 First order reaction and Characteristics of first order reaction 1.6 Pseudo- unimolecular reactions.	
<b>UNIT: II</b>	<b>THERMODYNAMICS</b>	<b>(08)</b>
	2.1 Introduction (Basic terms involved in thermodynamics) 2.2 Statement of Zeroth law, First law and Third law 2.3 Spontaneous & non-spontaneous processes 2.4 definitions, distinguishing points and examples 2.5 Second law of thermodynamics and its different Statements.	
<b>UNIT: III</b>	<b>LASER</b>	<b>(07)</b>
	3.1 A brief history of lasers 3.2 Einstein's prediction: The Three Processes 3.3 Pumping schemes 3.4 Characteristics of lasers 3.5 Types of lasers: Ruby laser, He-Ne laser 3.6 Applications of lasers in Forensic Science.	
<b>UNIT: IV</b>	<b>OPTICS</b>	<b>(08)</b>

4.1 Introduction to development of optics 4.2 Types of Lens, Lens maker's formula 4.3 Cardinal points of an optical system 4.4 Aberration and its types : Monochromatic, chromatic 4.5 Interference in thin film- Thin films 4.6 Interference due to transmitted light 4.7 Newton's rings.	
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**Course outcomes: The students will be able to...**

1. explain the introduction of chemical kinetics and their rate of reaction.
2. describe basic terms in thermodynamics and their all laws and statements.
3. apply different LASER techniques and phenomenon in forensic science.
4. describe different types of lens, Lens Equation, types of aberration.

**REFERENCE BOOKS:**

1. Bahl, Tuli and Bahl, *Essentials of Physical Chemistry*, S. Chand Publication, New Delhi, India (1-450), 28<sup>th</sup> edition, 2019.
2. Skoog, *Holler and Crouch Instrumental Analysis*, Cengage Learning 20 Channel Center Street Boston, MA 02210, USA. (696- 793) (2018)
3. S. Glasstone, *Thermodynamics for chemists*. (2017)
4. H.C. Verma, *Concepts of Physics*, (Bharati Bhavan Publishers 2017) 255-280
5. Soni and Dharmarha, *Textbook of Physical Chemistry*, Sultan Chand & Sons, 2016 (unit VI)
6. M. N. Avadhanulu and Dr.P.S.Hemne, *An introduction to Lasers – Theory and Applications*, S. Chand Publication, (Ref. 2, 11.7.1 – 11.7.4), 2010.
7. Sears and Zemanskys, *University Physics with Modern Physics*, 11<sup>th</sup> edition, Pearson education. (312-320), 2004.
8. Gupta Kumar *Heterocyclic chemistry Vol I and Vol II Springer*, Salmon Tower Building New York City, United States. (58, 66) (1998)
9. Day and Selbin, *Theoretical Inorganic Chemistry*, 2nd edition, DARYAGANJ NEW DELHI 181 DL (1969)
10. G. R. Goel, *Advanced Physical Chemistry*, Publishing House, 36<sup>th</sup> Edition

**SEMESTER – II**  
**COURSE II**  
**BFST 125: BASICS OF FORENSIC BIOLOGY II AND FORENSIC PSYCHOLOGY II**

**Course Objectives:** Students should be able to...

1. learn the basic concepts of microbiology.
2. study the basic principle of Immunology.
3. understand the concepts of sensation and perception.
4. understand the concept of Learning and its theories.

<b>Credits 2</b>	<b>SEMESTER – II</b> <b>Course II : BFST 125</b> <b>BASICS OF FORENSIC BIOLOGY II AND FORENSIC PSYCHOLOGY II</b>	<b>No. of hours per unit/credits</b>
<b>UNIT: I</b>	<b>BASICS OF MICROBIOLOGY</b>	<b>(07)</b>
	1.1 Concept of pure culture technique 1.2 Stains and staining techniques 1.3 Control of Microorganisms: Physical & Chemical methods of control 1.4 Microscopy principle and types of Microscopy 1.5 Broad classification of microorganisms	
<b>UNIT: II</b>	<b>IMMUNITY</b>	<b>(08)</b>
	2.1 Definition 2.2 Types-natural, acquired, active, passive 2.3 Antigens-Definition and types of antigens 2.4 Factors influencing antigenicity 2.5 Antibody-Definition, structure and types 2.6 Properties and functions of Immunoglobulin Agglutination and Precipitation.	

<b>UNIT: III</b>	<b>SENSATION AND PERCEPTION</b>	<b>(07)</b>
	3.1 Sensation and Perception-Definition 3.2 Perceptual constancies 3.3 Gestalt Principle of Perception-perceptual organization and Grouping of Stimuli in Perceptual Organization 3.4 Depth Perception	
	3.5 Errors in Perception-Illusion, Hallucination Individual Factors in Perception.	
<b>Unit - IV</b>	<b>Learning</b>	<b>(08)</b>
	4.1 Definition of Learning 4.2 Types of Learning 4.3 Theories of Learning - Classical Conditioning, Operant Conditioning, Trial-Error Learning, Insight Learning, Cognitive Learning Theory Tolman's Latent Learning, Bandura's Observational Learning Theory.	

**Course Outcomes: The students will be able to...**

1. explain concepts of microbiology.
2. describe basic principles of Immunology.
3. elaborate concepts related to sensation and perception.
4. discuss theories of Learning.

**REFERENCE BOOKS**

1. Surinder Kumar , *Essentials of Microbiology*, JP Medical Ltd, 2015
2. Roitt :*Essential Immunology* , Wiley - Blackwell , 2011(Unit IV Page no. 1 to 21)
3. Upadhyay & Nath, *Biophysical Chemistry*, Himalaya Publishing house (2010)
4. Ciccarelli, S. K. & Meyer G. E., *Psychology* (New Delhi, Pearson Education, 2006), 1304.
5. Edward E. S., Stephen M. K., *Cognitive Psychology Mind and Brain*, (New Delhi, Pearson Education, 17 Aug 2006)1-30.
6. *Kuby's Immunology*, Goldsby, Kindt, Osborne, W.H Freeman and company, New York 6th ed.(unit IV Page no.4 to 21), 21 July 2006
7. Dubey and Maheshwari, *Practical Microbiology*, S.Chand and company, New Delhi, 2002.
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9. Morgan C.T., King R.A., Weisz J.R., Schopler., *Introduction to Psychology*

(McGraw Hill Book Co.,1986)

10. Kimble G.A., Garnezy *Principles of General Psychology*, 3rd ed., New York, 1 Jan 1965(1- 90)

## SEMESTER – II

### **PRACTICAL COURSE II: BFSP 126: (BASED ON BFST 124 AND BFST 125) LABORATORY EXERCISES IN BASICS OF FORENSIC CHEMISTRY II AND FORENSIC PHYSICS II & BASICS OF FORENSIC BIOLOGY II AND FORENSIC PSYCHOLOGY II**

**Course Objectives:** Students should be able to...

1. study Reaction between  $K_2S_2O_8$  & KI, Semi micro qualitative analysis.
2. learn to determine the wavelength of a given LASER source by using plane diffraction grating.
3. learn blood groupings techniques.
4. learn staining techniques.
5. examine span of attention.

<b>Credits 2</b>	<b>SEMESTER – II Lab Course - II List of Practical</b>	<b>No. of hours per Practical (60)</b>
1	Chemical Kinetics I : Hydrolysis of Methyl Acetate 3	
2	Chemical Kinetics II: Study of Reaction Between $K_2S_2O_8$ & KI	
3	To study laws of Thermodynamics.	
4	To study the order and Molecularity of reaction.	
5	To determine the wavelength of a given (He-Ne LASER) LASER source by using plane diffraction grating.	
6	Measurement of divergence of laser.	
7	To find the refractive index of a liquid using convex lens and plane mirror	
8	To find the refractive index of a liquid using a concave mirror and a plane mirror.	
9	Study of morphological types of red blood cells	
10	Antigen-antibody reaction (blood groupings)	
11	Staining Techniques, Simple, Negative staining, Gram Staining	
12	Mitochondria – Stained preparation of mitochondria from i)Onion peeling ii) Hydrilla leaf iii) Oral mucosa by using Janus Green B	
13	Serial Learning	

14	Recall-Recognition
15	Span of Attention
16	Retroactive Inhibition and Proactive Inhibition

**Course Outcomes: The students will be able to...**

1. perform Reaction between  $K_2S_2O_8$  & KI, Semi micro qualitative analysis.
2. determine the wavelength of a given (He-Ne LASER) LASER source by using plane diffraction grating.
3. determine blood groups using Antigen-antibody reaction.
4. perform staining techniques.
5. find out span of Attention.

**REFERENCE BOOKS:**

1. Puri, Sharma and Kalia, *Principles of inorganic chemistry*, Milestone publisher, Delhi, India. 7 Dec 2020, (137-200 , 201 – 233 , 313 – 327 )
2. Bahl, Tuli and Bahl, *Essentials of Physical Chemistry*, New Delhi, India, 28<sup>th</sup> edition ,2019 (1-450)
3. *Stain and staining procedure* by Desai and Desai, 2017.
4. Soniand Dharmaraj, *Textbook of Physical Chemistry*, Sultan Chand & Sons, 2016 (unit VI)
5. *Forensic Biology* by Richard Li, Tailor & Francis Group, 2015.
6. Handbook of Media for clinical and public health microbiology by Ronald Atlas, Tailor & Francis Group, 2014.
7. H. Singh and P. S. Hemne *B.Sc. Practical Physics*, , S. Chand Publication, (4th edition, 2011) 20-60
8. White and Manning, *Experimental College Physics*, McGraw-Hill Book Company. (3rd edition 2011) 333-340
9. Gurdeep Raj, *Advanced Physical Chemistry*, Publishing House,36th Edition, 2011.
10. S. L. Gupta and V. Kumar, *Practical Physics*, Pragati Prakashan, (27th edition, 2010)
11. Puri, Sharmaand Pathania, *Principles of Physical Chemistry*, Vishal Publishing House,44th Edition Jaladhar July 1962, (525-557)
12. C. L. Arora, *B.Sc. Practical Physics*, (S. Chand Publication, 1957) 69-79



13. J. E. Huheey, *Inorganic Chemistry*, 4th edition, HarperCollins college publishers, (92-134, 300, 538-557, 655, 662 )
14. DFSL manual.
15. Serial Learning Manual
16. Recall-Recognition Manual
17. Maze learning Manual
18. Span of Attention Manual

**SEMESTER – II  
COURSE III  
BFST 127: CRIMINOLOGY II**

**Course Objectives: Students should be able to...** 1. learn the basics and concepts related to criminology.

2. classify schools of criminology.
3. study the crimes in India.
4. understand the nature and scope of criminology.

<b>Credits 2</b>	<b>SEMESTER – II COURSE III : BFST 129 CRIMINOLOGY II</b>	<b>No. of hours per unit</b>
<b>UNIT I</b>	<b>CRIME TOPOLOGIES-</b>	<b>(07)</b>
	Organised Crimes- Definition, Characteristics of Crime and Criminals, Types. White Collar Crimes- Definition, Classification, White Collar Crimes in India, Corporate Crimes, Judicial Response, Blue collar crimes, domestic crimes Cyber Crimes- Definition, Nature, Reasons, Classification, Impact of Cyber Crime, The I.T. Act. Sexual Offences - Indian Perspective, Crime against Women, Sexual Abuse of Children, POCSO. Drugs, alcohol & Crime - Main Causes of Drug Addiction, Illicit of Drug Trafficking, Alcoholism, Drug addicts & Crime, Drunkenness & Criminal Responsibility. Terrorism and Counter-Terrorism	

<b>UNIT II</b>	<b>THEORIES OF CRIMINAL BEHAVIOR</b>	<b>(08)</b>
	Sociological Theory of Crime- Introduction, Sociological Theory of Criminal Behavior, Theory of Differential Association, Crimes in Urban & Rural Areas. Theories of Criminal Behavior – Classical and neoclassical theories, biological & physiological theory, psychological, sociological, geographical, economic theory	
<b>UNIT III</b>	<b>PENOLOGY</b>	<b>(08)</b>
	Penology, Meaning, Aim & Philosophy of Punishment, Concept of Punishment, Justification for Punishment, Theories of Punishment Forms of Punishment in Criminal law – retributive, deterrent, reformative, expiatory Typologies of Punishment - imprisonment for a term, life imprisonment, death penalty, fines, forfeiture Recidivism, Judicial sentencing, capital punishment	
<b>UNIT IV</b>	<b>VICTIMOLOGY</b>	<b>(07)</b>
	Victim-offender relationship, Victimology, Victimization, impact of victimization – physical and financial impact, victim typology, Types of victims, victim protection, Rights of the Crime victims, Victim compensation in India, Victimization of children Juvenile Delinquency - Definition & Meaning of Juvenile Delinquency, causes, Juvenile Justice in India, Crimes against juveniles and penalties for them, Observation homes, Special homes or correction homes between modus operandi & motive.	

**Course Outcomes: The students will be able to...**

1. define and explain core criminological concepts and theories.
2. analyze the relationship between crime, society, and the individual.
3. understand the Indian criminal justice system and its challenges.
4. develop research skills to investigate criminological issues.

**REFERENCE BOOKS:**

1. Dr. N.V. Paranjape, *Criminology & Penology with victimology*, Central law Publication, (7th edition, 2018)
2. Ahmad Siddique, *Criminology & Penology*, Eastern book Co. (6th edition)
3. Advani, Neera, *Crime and Society in India*. New Delhi: Sage Publications, 2010.

4. Chaudhary, Usha, *Criminology and Criminal Justice*. New Delhi: Deep & Deep Publications, 2015.
5. Ishwaran, K. S. *Crime and Society in India*, New Delhi: Prentice-Hall of India, 2002.
6. Singh, R. K. *Indian Criminology*, Allahabad: Allahabad Law Agency, 2008

**SEMESTER II  
COURSE III  
BFST 128: LAW II**

**Course Objectives: Students should be able to...**

1. learn offenses against the person, property, and the state.
2. understand types of crimes.
3. study the crimes and punishment.
4. comprehend Acts and its amendments.

<b>Credits 2</b>	<b>SEMESTER II Course III : BFST 128 Law II</b>	<b>No. of hours per unit</b>
<b>UNIT I</b>	<b>OFFENCES</b>	<b>(07)</b>
	Offences related to property Offences related to documents & property marks	
<b>UNIT II</b>	<b>MAJOR ACTS I</b>	<b>(08)</b>
	Wildlife Protection Act. I.T.Act.2000 and its amendments.	
<b>UNIT III</b>	<b>MAJOR ACTS II</b>	<b>(08)</b>
	Narcotic Drugs and Psychotropic Substances Act Drugs and Cosmetics Act.	

<b>UNIT IV</b>	<b>MAJOR ACTS III</b>	<b>(07)</b>
	Dowry Prohibition Act. POCSO Act	

**Course Outcomes: The students will be able to...**

1. analyze offenses against the person, property, and the state.
2. classify types of crimes.
3. differentiate the crimes and punishment.
4. apply Acts and its amendments.

**REFERENCE BOOKS:**

1. Information Technology (IT) Act, 2000
2. Wildlife Protection Act.
3. NDPS Bare Act
4. Drugs and Cosmetics Act.
5. POCSO Act 2012
6. Bhaskar Chaurasia, *Textbook of Forensic Pharmacy (Pharmaceutical jurisprudence)*, CBS Publications & Distributers, 2018

**SEMESTER – II**

**LAB COURSE III: BFSP 129: (BASED ON BFST 127 AND BFST 128)  
LABORATORY EXERCISES IN CRIMINOLOGY II & LAW II**

**Course Objectives:** Students should be able to...

1. learn various forms of crime    2. understand the Indian police System
3. understand concept of criminology.
4. conduct crime analysis.

Credits 2	SEMESTER – II PRACTICAL COURSE - III LIST OF PRACTICAL	No. of hours per Practicals (60 hrs)
1	Describe accidental deaths and suicides in india	
2	To study socio economic crimes	
3	To understand various forms of crime	
4	Describe accidental deaths and suicides in india	
5	Learn basic functions and duties of police	
6	Important Court Decisions and Case Studies	
7	Field visit to any of the following criminal justice administrations – District Court/ Observation/Juvenile home/ Police Training Academy/ Forensic Medicine Department /Fire Station	
8	To study the history of crime cases from forensic science perspective	
9	Frye vs Daubert standards.	
10	To cite example of a case for opinion of an expert	
11	To study a crime case in which an accused was punished on charge of Dacoity	
12	To study a crime case in which an accused was punished on charge of Robbery	
13	To study the important sections of IT.Act	
14	Cyber Crime Scenario in india	
15	To study laws & punishments for crime against women	

**Course Outcomes: The students will be able to...**

1. analyze relationship between crime & society
2. elaborate the Indian police System
3. understand concept of criminology.
4. conduct crime analysis.

**REFERENCE BOOKS:**

1. Dr. N.V. Paranjape, *Crimonology & Penology with victimology*, Central law Publication, (7th edition, 2018)
2. Ahmad Siddique, *Criminology & Penology*, Eastern book Co. (6th edition)
3. Advani, Neera, *Crime and Society in India*. New Delhi: Sage Publications, 2010.
4. Chaudhary, Usha, *Criminology and Criminal Justice*. New Delhi: Deep & Deep Publications, 2015.
5. Ishwaran, K. S. *Crime and Society in India*, New Delhi: Prentice-Hall of India, 2002.
6. Singh, R. K. *Indian Criminology*, Allahabad: Allahabad Law Agency, 2008

**SEMESTER – II**

**OPEN ELECTIVE II  
BFSTOE2: BIOPSYCHOLOGY**

**Course Objectives: Students will be able to...**

1. study the division of biopsychology known as physiological psychology.
2. know about basic anatomy of the nervous system.
3. gain knowledge about CNS and PNS.
4. study the Neuron and function of brain.

<b>Credits 2</b>	<b>SEMESTER – I OE-II BIOPSYCHOLOGY</b>	<b>No. of hours per unit</b>
<b>UNIT:I</b>	<b>INTRODUCTION TO BIOPSYCHOLOGY AS A NEUROSCIENCE</b>	<b>(08)</b>
	1.1. Definition of Biopsychology, 1.2. origin of biopsychology, 1.3. Neuroscience, relation between biopsychology and Neuroscience, 1.4. Types of Research Characterize the Bio psychological Approach, 1.5. 1.5.Divisions of biopsychology	
<b>UNIT – II</b>	<b>ANATOMY OF THE NERVOUS SYSTEM-I</b>	<b>(08)</b>

	<p>2.1. Introduction to Nervous system,</p> <p>2.2. Division of the Nervous system,</p> <p>2.3. Central Nervous System (CNS),</p> <p>2.4. Cells of the Nervous and Anatomy of Neurons,</p> <p>2.5. Neuroanatomical Techniques and Directions</p>	
<b>UNIT – III</b>	<b>ANATOMY OF THE NERVOUS SYSTEM-II</b>	<b>(07)</b>
	<p>3.1. Introduction to Peripheral Nervous system (PNS),</p> <p>3.2. Spinal Cord,</p> <p>3.3. Five Major Divisions of the Brain,</p> <p>3.4. Limbic System and the Basal Ganglia,</p> <p>3.5. How Neurons Send and Receive Signals.</p>	
<b>UNIT – IV</b>	<b>NEURAL CONDUCTION AND SYNAPTIC TRANSMISSION</b>	<b>(07)</b>
	<p>4.1. Resting Membrane Potential,</p> <p>4.2. Generation, Conduction, and Integration of Postsynaptic Potentials,</p> <p>4.3. Generation, Conduction and Integration of Postsynaptic Potentials,</p> <p>4.4. Synaptic Transmissions, Neurotransmitters,</p> <p>4.5. Pharmacology of Synaptic Transmission and Behaviour.</p>	

### **Course Outcomes: the students should be able to...**

1. explain different division of biopsychology known as physiological psychology
2. explain the basic anatomy of the nervous system.
3. discuss about the CNS and PNS.
4. explain neuron and function of brain.

### **REFERENCE BOOKS:**

1. Sullivan Ezra, *Habits and Holiness- Ethics, Theology, and Biopsychology*, The Catholic University of America Press 2021.
2. Pinel John P.J., Barnes S.J., *Biopsychology*, Tenth Edition, Global Edition, Pearson Education Limited 2018.
3. Myers, D. G. *Psychology*.10th edition; International edition. New York: Worth Palgrave Macmillan, Indian reprint 2013.
4. Lahey, B. B. *Psychology: An Introduction*, 11th edit. New York: McGraw-Hill Publications3, (2012).
5. Feldman Robert S. *Understanding Psychology*, McGraw-Hill, 2011.
6. Baron, R. A., & Kalsher, M. J. *Psychology: From Science to Practice*. (2nd ed.).Pearson Education inc., Allyn and Bacon (2008).
7. Morgan Clifford T., King Richard A., Weisz John R., Schopler John. *Introduction to Psychology*, New Delhi, McGmw Hill EducaUon (India) Private Limited, 1986.
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