

**Dr. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
CHHATRAPATI SAMBHAJINAGAR.**



CIRCULAR NO.SU/ Sci./College/NEP-2020/105/2024

It is hereby inform to all concerned that, In continuation circular No.SU./Revised B.Sc./NEP/72/2024/25588-96 dated 29.04.2024, the revised syllabi prepared by the Board of Studies/Ad-hoc Boards and recommended by the Dean, Faculty of Science & Technolgy, the Academic Council at its meeting held on 08 April 2024 has accepted **the following Revised B.Sc. Course Structure & Curriculum** as per direction by the State Government dated on 13 March 2024 under the Faculty of Science & Technology (as per National Education Policy – 2020) run at the Affiliated Colleges, Dr.Babasaheb Ambedkar Marathwada University as appended herewith.

Sr.No.	Courses	Semester
1	Non Conventional & Conventional Enery (Single Major)	Ist and IInd semester
2	Home Science (Single Major)	Ist and IInd semester
3	Bachelor of Computer Application (Single Major)	Ist and IInd semester
4	Computer Science (Single Major)	Ist and IInd semester
5	Data Science (Single Major)	Ist and IInd semester
6	Inforamtion Technology (Single Major)	Ist and IInd semester
7	Networking and Multimedia (Single Major)	Ist and IInd semester
8	Automobile Technology (Single Major)	Ist and IInd semester
9	Forensic Science (Single Major)	Ist and IInd semester
10	Forensic Science & Cyber Security (Single Major)	Ist and IInd semester

This is effective from the Academic Year 2024-25 and onwards.

All concerned are requested to note the contents of this circular and bring the notice to the students, teachers and staff for their information and necessary action.

University Campus,
Chhatrapati Sambhajnagar
-431 004.
Ref.No. SU/Sci./2024/27121-28
Date:-27.05.2024.

*
*
*
*
*
*
*
*
*
*
*


**Deputy Registrar,
Academic Section.**

Copy forwarded with compliments to :-

- 1] **The Principal of all concerned Colleges,**
Dr. Babasaheb Ambedkar Marathwada University,
- 2] **The Director, University Network & Information Centre, UNIC, with a request to upload this Circular on University Website.**

Copy to :-

- 1] The Director, Board of Examinations & Evaluation, Dr.Babasaheb Ambedkar Marathwada University,Chhatrapati Sambhajanagar.
- 2] The Section Officer,[B.Sc.Unit] Examination Branch, Dr.Babasaheb Ambedkar Marathwada University,Chhatrapati Sambhajanagar.
- 3] The Programmer [Computer Unit-1] Examinations, Dr.Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajanagar.
- 4] The Programmer [Computer Unit-2] Examinations, Dr.Babasaheb Ambedkar Marathwada University,Chhatrapati Sambhajanagar.
- 5] The In-charge,[E-Suvidha Kendra], Rajarshi Shahu Maharaj Pariksha Bhavan, Dr.Babasaheb Ambedkar Marathwada University,Chhatrapati Sambhajanagar.
- 6] The Public Relation Officer, Dr.Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajanagar.
- 7] The Record Keeper, Dr.Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajanagar.

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY
CHHATRAPATI SAMBHAJINAGAR- 431001**



B.Sc. Degree Programme

(Three Year / Four Years (Hons) /Four Years (Hons with Research))

Course Structure and Curriculum

(Revised)

(AS PER NEP-2020)

**Subject (Major): Forensic Science and Cyber Security
(Single Major)**

Effective from 2024-25

431-51

Table of Contents

Preface	3
Programme Educational Objectives (PEOs)	5
Programme Outcomes (POs)	6
Programme Specific Outcomes (PSOs)	7
Eligibility	8
Duration	8
Medium of Instruction	8
Attendance	8
Selection of Minor	8
Curriculum and Structure as per NEP 2020	9
Structure and Curriculum for Semester-I	9
Structure and Curriculum for Semester-II	10
Detailed Curriculum of Semester-I	14
Discipline-Specific Core Courses (Major)	14
Skill Enhancement Courses (SEC)	24
Generic/Open Elective for Other Faculty than Science and Technology (GE/OE)	30
Detailed Curriculum of Semester-II	34
Discipline-Specific Core Courses (Major)	34
Vocational Skill Courses (VSC)	43
Generic/Open Elective for Other Faculty than Science and Technology (GE/OE)	48

Preface

As we stand on the threshold of a new era in education, the dawn of the National Education Policy 2020 illuminates our path toward a holistic, inclusive, and progressive educational landscape. The Bachelor of Science (B. Sc.) curriculum outlined herein reflects the ethos and aspirations of this transformative policy, aiming to equip learners with the knowledge, skills, and values necessary to thrive in the dynamic world of the 21st century.

At its core, the National Education Policy 2020 envisions an educational framework that is learner-centric, multidisciplinary, and geared towards fostering creativity, critical thinking, and innovation. It emphasizes the integration of knowledge across disciplines, breaking down traditional silos to encourage holistic understanding and application of concepts. The Bachelor of Science (B. Sc.) curriculum embodies these principles by offering a diverse array of courses spanning various scientific domains, while also incorporating interdisciplinary studies to nurture well-rounded graduates capable of addressing complex challenges with agility and insight.

Furthermore, the curriculum is designed to promote experiential learning, research, and hands-on exploration, recognizing the importance of practical engagement in deepening understanding and cultivating real-world skills. Through laboratory work, field experiences, internships, and project-based learning opportunities, students will have the chance to apply theoretical knowledge in practical settings, develop problem-solving abilities, and cultivate a spirit of inquiry and discovery.

Integral to the National Education Policy 2020 is the commitment to inclusivity, equity, and access to quality education for all. The Bachelor of Science (B. Sc.) curriculum reflects this commitment by embracing diversity in perspectives, backgrounds, and experiences, and by fostering an inclusive learning environment where every student feels valued, supported, and empowered to succeed.

Moreover, the curriculum emphasizes the cultivation of ethical values, social responsibility, and global citizenship, instilling in students a sense of accountability towards society and the environment. By integrating courses on ethics, sustainability, and social sciences, the Bachelor of Science (B. Sc.) program aims to produce graduates who are not only proficient in their respective fields but also compassionate, ethical leaders committed to making a positive impact on the world.

As we embark on this journey of educational transformation guided by the National Education Policy 2020, the Bachelor of Science (B. Sc.) curriculum stands as a testament to our collective vision of a more equitable, inclusive, and enlightened society. We hope that through rigorous academics, innovative pedagogy, and unwavering dedication to excellence, we can inspire the next generation of scientists, scholars, and change-makers to realize their full potential and contribute meaningfully to the advancement of knowledge and the betterment of humanity.

Programme Educational Objectives (PEOs)

Programme Educational Objectives (PEOs) for the Bachelor of Science Curriculum under the National Education Policy 2020

1. **Mastery of Discipline-Specific Knowledge:** Graduates of the Bachelor of Science program will demonstrate a deep understanding of fundamental principles, theories, and methodologies in their chosen scientific discipline, enabling them to analyse complex problems, propose innovative solutions, and contribute to advancements in their field.
2. **Interdisciplinary Proficiency:** Graduates will possess the ability to integrate knowledge and skills from multiple scientific disciplines, fostering a holistic approach to problem-solving and innovation. They will be equipped to address multifaceted challenges by drawing upon diverse perspectives and methodologies.
3. **Critical Thinking and Analytical Skills:** Graduates will develop strong critical thinking abilities, enabling them to evaluate information rigorously, analyze data effectively, and make informed decisions based on evidence. They will demonstrate proficiency in applying logical reasoning and scientific methods to solve problems and generate new knowledge.
4. **Leadership and Innovation:** Graduates will demonstrate leadership qualities and entrepreneurial mindset, capable of initiating and driving positive change in their organizations and communities. They will exhibit creativity, resilience, and adaptability, harnessing innovation to address complex challenges and seize opportunities for growth and advancement.
5. **Global Citizenship and Cultural Sensitivity:** Graduates will possess a global perspective and cultural sensitivity, recognizing the interconnectedness of diverse communities and the importance of collaboration across borders. They will engage in cross-cultural dialogue, embrace diversity, and contribute to the advancement of knowledge and understanding on a global scale.

These Programme Educational Objectives serve as guiding principles for the Bachelor of Science curriculum, reflecting our commitment to nurturing well-rounded graduates who are

prepared to excel in their careers, contribute to society, and lead meaningful lives in a rapidly changing world.

Programme Outcomes (POs)

The National Education Policy (NEP) 2020 for India emphasizes several key aspects for Bachelor of Science (B.Sc.) programs, aiming to produce graduates who are not only well-versed in their respective disciplines but also equipped with skills necessary for holistic development and employability. While specific program outcomes may vary between institutions and disciplines within B.Sc. programs, here are some common outcomes aligned with NEP 2020:

- **PO1. The citizenship and society:** Apply broad understanding of ethical and professional skill in science subjects in the context of global, economic, environmental and societal realities while encompassing relevant contemporary issues.
- **PO2. Environment and sustainability:** Apply broad understanding of impact of science subjects in a global, economic, environmental and societal context and demonstrate the knowledge of, and need for sustainable development.
- **PO3. Ethics:** Apply ability to develop sustainable practical solutions for science subject related problems within positive professional and ethical boundaries.
- **PO4. Individual and team work:** Function effectively as a leader and as well as team member in diverse/ multidisciplinary environments.
- **PO5. Communication:** Communicate effectively on complex science subject related activities with the scientific community in particular and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **PO6. Project management and finance:** Demonstrate knowledge and understanding of the first principles of science and apply these to one's own work as a member and leader in a team, to complete project in any environment.

- **PO7. Life-long learning:** Recognize the need for lifelong learning and have the ability to engage in independent and life-long learning in the broadest context of technological change.

These program outcomes align with the broader goals of NEP 2020 to transform higher education in India and prepare students for the challenges and opportunities of the 21st century. Board of Studies designing B.Sc. curricula are encouraged to incorporate these outcomes into their program objectives and learning outcomes.

Programme Specific Outcomes (PSOs)

B.Sc. Forensic Science and Cyber Security program is also aligned with the NEP 2020 and has the following program specific outcomes.

PSO1. Domain knowledge: Apply the knowledge of forensic science and cyber security to provide comprehensive solutions to complex forensic problems.

PSO2. Problem Analysis: Identify problems related to forensic sciences and cyber security at varied complexity and analyse the same to formulate/ develop substantiated conclusion using principles of forensic sciences

PSO3. Design Development of solutions: Design/ develop solutions for problems of varied complexity in various areas of forensic sciences and cyber security to address changing challenges put forward by market demand/ stakeholder

PSO4. Conduct Investigation of complex problems: Use established knowledge and methods to design of experiments, analyze resulting data and interpret the same to provide valid conclusions.

PSO5. Modern tools: Create, select, and apply appropriate techniques, resources, and modern electronics and relevant IT tools including prediction and modelling to complex forensic technology related activities with clear understanding of the limitations.

Eligibility

A candidate who has passed 12th in science from a recognized board with at least 45% marks will be eligible for getting admission to the first year of UG programs. Reservation policy and relaxation of marks will be as per the norms of the university and the Government of Maharashtra.

Duration

As per the guidelines of the Government of Maharashtra and the university, the UG Program will be for three/four years. Lateral entry/exit is applicable as per the guidelines of the university.

Medium of Instruction

Presently, the medium of instruction is English. However, any change in this will be as per the guidelines of the university and the government of Maharashtra.

Attendance

Students must have a minimum of 75 % attendance in each theory and practical course to appear in the Semester End Examination (SEE), otherwise he/she will not be strictly allowed to appear for the SEE. However, students having 65 % attendance may request the Head of the concerned Institution for the condonation of attendance on medical grounds.

Selection of Minor

Based on the requirements of industries and laboratories, three minors have been identified as follows: Physics, Mathematics and Computer Science. The students can opt any of the minors subject to availability in the respective college/institute. Based on availability of infrastructure and faculty members, the principal of the college can decide what minor has to be started and how many students will be enrolled in a particular minor. As cyber security is an applied subject, a major based on minor has also been incorporated for a better understanding of the subject.

Curriculum and Structure as per NEP 2020
Structure of B. Sc. (Three / Four Years Honours / Honours with Research Degree) Programme with Multiple Entry and Exit Options

Structure and Curriculum for Semester-I

BSc First Year: 1st Semester Subject (Major): Forensic Science and Cyber Security

Course Type	Course Code	Course Name	Teaching Scheme (Hrs / Week)		Credits Assigned		Total Credits
			Theory	Practical	Theory	Practical	
Major (Core) M1 Mandatory	DSC-1	Introduction to Forensic Science	2		2		2+2= 04
	DSC-2	Practical based on DSC-1		4		2	
Major (Core) M2 Mandatory	DSC-3	Introduction to Computers	2		2		2+2= 04
	DSC-4	Practical based on DSC-3		4		2	
Major (Core) M3 Mandatory	DSC-5	Legal aspects of crime	2		2		2+2= 04
	DSC-6	Practical based on DSC-5		4		2	
Generic / Open Elective (GE/OE) (Choose any one from the pool of courses) It should be chosen compulsorily from the faculty other than that of the Major	GE/OE-1	To be chosen from other faculty	2		2		02
SEC (Skill Enhancement Courses) (Choose any one from pool of courses: Theory and practical course together make a complete course)	SEC-1A	Forensic Photography	1		1		1+1=02
	SEC-1B	Economic Offences					
	SEC-2A	Practical Based on SEC-1A					
	SEC-2B	Practical Based on SEC-1B		2		1	
AEC, VEC, IKS	AEC-1	English (Common for all the faculty)	2		2		2+2=04
	IKS-1	Choose any one from pool of courses	2		2		
OJT/ FP/CEP/CC/RP	CC-1	Health and Wellness (Common for all the faculty)		4		2	02
			13	18	13	09	22

GE/OE-1: **Criminalistics** (This is a 2-credit theory course to be designed for the other faculty than Science and Technology)

Structure and Curriculum for Semester-II

BSc First Year: 2nd Semester Subject (Major): Forensic Science and Cyber Security

Course Type	Course Code	Course Name	Teaching Scheme (Hrs / Week)		Credits Assigned		Total Credits		
			Theory	Practical	Theory	Practical			
Major (Core) M1 Mandatory	DSC-7	Crime Scene Investigation	2		2		2+2 = 4		
	DSC-8	Practical based on DSC-7		4		2			
Major (Core) M2 Mandatory	DSC-9	Introduction to C Programming	2		2		2+2 = 4		
	DSC-10	Practical based on DSC-9		4		2			
Major (Core) M3 Mandatory	DSC-11	Introduction to Psychology	2		2		2+2 = 4		
	DSC-12	Practical based on DSC-11		4		2			
Generic / Open Elective (GE/OE) (Choose any two from pool of courses) It should be chosen compulsorily from the faculty other than that of Major	GE/OE-2	To be chosen from other faculty	2		2		2		
VSC (Vocational Skill Courses) (Choose any one from pool of courses: Theory and practical course together make a complete course)	VSC-1A	HTML Programming	1		1		1+1=02		
	VSC-1B	Blood Pattern Analysis							
	VSC-2A	Practical based on VSC-1A						2	1
	VSC-2B	Practical based on VSC-1B							
AEC, VEC, IKS	AEC-1	English (Common for all the faculty)	2		2		2+2 =4		
	VEC-1	Constitution of India (Common for all the faculty)	2		2				
OJT/ FP/CEP/CC/RP	CC-2	Yoga Education / Sports and Fitness (Common for all the faculty)		4		2	2		
			13	18	13	09	22		
Exit Option: Award of UG Certificate in 3 Majors with 44 credits and an additional 4 credits of core NSQF course / Internship OR continue with Major and Minor									

GE/OE-2: **Handwriting Examination** (This is a 2-credit theory course to be designed for the other faculty than Science and Technology)

Detailed Illustration of Courses included in 1st and 2nd semester:

- 1) **Major (Core)** subject is mandatory.
DSC-1,3,5,7,9,11: This is a 2-credit theory course corresponding to Major (core) subject
DSC-2,4,6,8,10,12: This is a 2-credit practical course based on DSC- DSC-1,3,5,7,9,11 respectively
- 2) **Generic / Open Elective (GE/OE):** (Needs to be chosen (any two) from pool of courses available at respective college). **These courses should be chosen compulsorily from faculty other than that of Major.**
GE/OE -1: This is a 2-credit theory course should be chosen compulsorily from faculty other than that of Major.
GE/OE -2: This is a 2-credit theory course should be chosen compulsorily from faculty other than that of Major.
- 3) **SEC (Skill Enhancement Courses):** Choose any one from pool of courses. These courses need to be designed to enhance the technical skills of the students in specific area.

SEC-1: This is a 1-credit theory course to enhance the technical skills of the students in specific area.
SEC-2: This is a 1-credit practical course based on SEC-1.
- 4) **VSC (Vocational Skill Courses):** Choose any one from pool of courses. These courses should be based on Hands on Training corresponding to Major (core) subject.

VSC-1: This is a 1-credit theory course-based Hands-on Training corresponding to Major (core) subject.
VSC-2: This is a 1-credit practical course based on VSC-1
- 5) **AEC (Ability Enhancement courses):** The focus of these courses should be based on linguistic and communication skills. In first semester it will be English and will be common for all the faculty.

AEC-1: English
This is a 2-credit theory course based on linguistic proficiency. It will be common for all the faculty.
AEC-2: English
This is a 2-credit theory course based on linguistic proficiency. It will be common for all the faculty.
- 6) **IKS (Indian Knowledge System):** The courses related to traditional and ancient culture of India will be included in this section. The respective college will have to choose one of the courses from the pool of courses designed by the University.

IKS-1: To be chosen from the pool of courses designed by the University

This is a 2-credit theory course based on Indian Knowledge System. It will be common for all the faculty

- 7) **VEC (Value Education Courses):** The courses such as understanding India, Environmental Science / Education, Digital and Technological solutions etc will be part of Value Education Courses.

VEC-1: Constitution of India

This is a 2-credit theory course based on value education. It will be common for all the faculty

- 8) **CC (Curricular Courses):** The courses such as Health and wellness, Yoga education, Sports and Fitness, Cultural activities, NSS/NCC, Performing Arts.

CC-1: Health and Wellness

This is a 2-credit practical course based on Co-curricular activities. It will be common for all the faculty

CC-2: Yoga education / Sports and Fitness

This is a 2-credit practical course based on Co-curricular activities. It will be common for all the faculty

Semester-I

Detailed Curriculum of Semester-I

Discipline-Specific Core Courses (Major)

DSC-1: Introduction to Forensic Science		
Total Credits: 02 Maximum Marks: 50		Total Contact Hours: 30 Hrs.
<p>Learning Objectives of the Course: The learning objectives of the course are as follows:</p> <ul style="list-style-type: none"> • Students will gain an idea of forensic science and its applications • Students will learn and analyze the various crime scenes for their reconstruction • Students will have an understanding of various physical evidence • Students will understand various bloodstain patterns • Students will learn the court and court procedures <p>Course Outcomes (COs): After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • CO1: Define and explain forensic science, the criminal justice system, crime and related organizations of forensic science • CO2: Explain and interpret criminal behavior and its connections with the crime scenario • CO3: Interpret laws and principles of forensic science • CO4: Classify and evaluate crime and its connections with victim and perpetrator • CO5: Analyze various crime scenario and apply it into a case study 		
ModuleNo.	Topics / actual contents of the syllabus	Contact Hours
I	<p>Introduction to Forensic Science</p> <ul style="list-style-type: none"> • Introduction to Forensic Science • Laws and principles of forensic science • Criminal justice system in India • Organizational set-up and functions of police, prosecution, and courts in India • Domains of Forensic Science • Ethics in forensic science 	10 Hrs.

II	<p>Crime and criminal behavior</p> <ul style="list-style-type: none"> • Crime and its elements • Classification of crime • Victim and its classification • Criminal and its classification • Criminology: definition and historical development • Criminal behavior: classical and non-classical theories, biological theories, physiological theories, psychogenic theory, economic theory, geographical theories, sociological and multi-factor theories 	10 Hrs.
III	<p>Organization related to Forensic Science</p> <ul style="list-style-type: none"> • Forensic Science Laboratory in India • Regulatory bodies: Directorate of Forensic Science Services, Bureau of Police Research and Development, National Crime Record Bureau • Intelligence agencies: Intelligence Bureau and Research and Analysis wing • Law enforcement agencies: CID, CBI, NIA, Interpol • Research Organizations: CDFD, CCMB, DRDO • Training Institutions: CDTI, NPA • Drug testing organizations: World/National Anti-doping Agency, National Drug Testing Laboratory 	10 Hrs.
<p>Suggested Readings/Reference Books:</p> <ol style="list-style-type: none"> 1. Richard Saferstien, Forensic Science: From the Crime Scene to the Crime Lab, 4th edition, Pearson, USA. 2. Suzane Bell, Forensic Science: An Introduction to Scientific and Investigative Techniques, Fifth Edition, CRC Press. 3. Max M. Houck and Jay A. Siegel, Fundamental of Forensic Science 4. Richard Saferstein, Handbook of Forensic Science, Volume-I, II and III 5. Forensic Science in Criminal Investigation and Trial, 4th Edn.: B.R. Sharma 6. Criminology By Ram Ahuja 		

DSC-2: Practical based on DSC-1 (Introduction to Forensic Science)

Total Credits: 02

Total Contact Hours: 60 Hrs.

Maximum Marks: 50

Learning objectives and outcomes of the course:

This is a laboratory course based on **Introduction to Forensic Science (DSC-1)**. The course objectives and outcomes of this laboratory course have been added to the theory course. A minimum of 10 practical has to be covered in the semester for successful completion of the course.

ModuleNo.	List of Practical	Contact Hours
I	<ol style="list-style-type: none">1. To apply laws and principles of forensic science in real crime scenario2. To classify crime based on the given cases3. To perform a preliminary examination on the given glass pieces for their (dis)similarity (color/opacity/refractive indices/density etc.)4. To get familiar with the tools and techniques in forensic sciences5. To perform a preliminary examination of bangle pieces6. To perform a preliminary examination of cloth pieces7. To perform a preliminary examination of leaves8. To perform a preliminary examination of fibres9. To perform a preliminary examination of soil samples10. To perform a preliminary examination of pollens11. Any other practical designed by the faculty member based on recent advances/latest trends	60 Hrs.

DSC-3: Introduction to Computers

Total Credits: 02

Total Contact Hours: 30 Hrs.

Maximum Marks: 50

Learning Objectives of the Course:

The learning objectives of the course are as follows:

- Students will gain an idea of computers and its components
- Students will learn various operating systems
- Students will have an understanding of the network
- Students will understand the basics of email
- Students will learn word processing, spread sheet and presentation

Course Outcomes (COs):

After completion of the course, students will be able to:

- CO1: Define and explain the components of the computer
- CO2: Explain and interpret operating systems
- CO3: Understand the basics of network, internet and email
- CO4: Classify various documents
- CO5: Create word, spreadsheet and presentation

ModuleNo.	Topics / actual contents of the syllabus	Contact Hours
I	Knowing computer <ul style="list-style-type: none">• What is Computer, Basic Applications of Computer; Components of Computer System, Central Processing Unit (CPU), VDU, Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software;• Concept of Computing, Data and Information; Applications of IECT; Connecting keyboard, mouse, monitor and printer to CPU and checking power supply• Number systems: Decimal Number system, Binary number system, Octal & Hexadecimal number system• Storage Devices: Storage Fundamentals, Primary and Secondary Storage, Data Storage and Retrieval Methods — Sequential, Direct & Indexed Sequential, Tape Storage and Retrieval Methods Tape storage Devices, characteristics and limitations, Direct access Storage and Microcomputers – Hard Disks, Disk Cartridges, Direct Access Storage Devices for large Computer	10 Hrs.

	systems, Mass storage systems and Optical Disks, CD ROM	
II	<p>Understanding Operation of Computers</p> <ul style="list-style-type: none"> • System Software: System software Vs. Application Software, Types of System Software, Introduction and Types of Operating Systems. Boot Loader, Diagnostic Programs, BIOS, Utility Programs. • Application Software: Microcomputer Software, Interacting with the System, Trends in PC software, Types of Application Software, Difference between Program and Packages. • Computer Languages: Definition, Generations of computer languages, Types of Languages, Language Processors: Assembler, Interpreter, Compiler, Linker and Loader. Programming constructs, Algorithm & flowchart • Computer network: basics of computer network, internet and email. 	10 Hrs.
III	<p>Working with computers</p> <ul style="list-style-type: none"> • Understanding Word Processing: Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling; Spell check, language setting and thesaurus; • Using Spread Sheet: Basics of Spreadsheet; Manipulation of cells; Formulas and Functions; Editing of Spread Sheet • Making Small Presentation: Basics of presentation software; Creating Presentation; Preparation and Presentation of Slides; Slide Show; Taking printouts of presentation / handouts 	10 Hrs.
<p>Suggested Readings/Reference Books:</p> <ol style="list-style-type: none"> 1. Peter Norton, Introduction to Computers, McGraw Hill Education, 2017. 2. Faithe Wempen, Computing Fundamentals: Introduction to Computers, Wiley Publications, 2015 		

DSC-4: Practical based on DSC-3 (Introduction to Computers)

Total Credits: 02

Total Contact Hours: 60 Hrs.

Maximum Marks: 50

Learning objectives and outcomes of the course:

This is a laboratory course based on **Introduction to Computers (DSC-3)**. The course objectives and outcomes of this laboratory course have been added to the theory course. A minimum of 10 practical has to be covered in the semester for successful completion of the course.

ModuleNo.	List of Practical	Contact Hours
I	<ol style="list-style-type: none">1. To assemble a desktop computer2. To set up various computers in a local network3. To create a brochure using a word processing software4. To create a CV/Resume using a word processing software5. To make a presentation using infographics6. To create a poster using a presentation software7. To create a spreadsheet applying basic statistics of the given data8. To create a spreadsheet calculating the budget of an organization9. To create a spreadsheet plotting bar, line, and pie charts10. To draw a scatter plot with trend lines in a spreadsheet11. To write a professional email12. Any other practical designed by the faculty member based on recent advances/latest trends	60 Hrs.

DSC-5: Legal Aspects of Crime

Total Credits: 02

Total Contact Hours: 30 Hrs.

Maximum Marks: 50

Learning Objectives of the Course:

The learning objectives of the course are as follows:

- Students will gain an idea of crime and its types
- Students will learn and interpret various offenses
- Students will have an understanding of offenses affecting human body
- Students will understand criminal behavior
- Students will learn the offenses against the properties

Course Outcomes (COs):

After completion of the course, students will be able to:

- CO1: Define crime
- CO2: Explain and interpret various offenses
- CO3: Explain offenses affecting the human body
- CO4: explain offenses against the properties

ModuleNo.	Topics / actual contents of the syllabus	Contact Hours
I	Basics of Crime <ul style="list-style-type: none">• Definition of Crime• Essentials and stages of Crime• Cognizable and non-cognizable offenses, bailable and non-bailable offenses,• Compoundable and non-compoundable offenses• Kinds of punishment, historical background of penal code in India, classification of offenses, criminal conspiracy	10 Hrs.
II	Offense affecting the human body <ul style="list-style-type: none">• Culpable homicide, Murder, Dowry Death, Attempt to Murder• Hurt, Grievous hurt,• Wrongful restraint and wrongful confinement, Assault or Criminal force to• women with intent to outrage her modesty, kidnapping and abduction, Sexual offenses.	10 Hrs.
III	Offense against properties	10 Hrs.

	<ul style="list-style-type: none">• Offences of theft, extortion, robbery, dacoity and their punishments, dishonest misappropriation of property• criminal breach of trust, receiving of stolen property and offense of cheating with punishments.	
--	---	--

Suggested Readings/Reference Books:

1. Criminology By Ram Ahuja
2. The Indian Penal Code: K.D. Gaur
3. The Indian Penal Code:Ratanlal and Dhirajlal
4. The Criminal Procedure Code: Takwani
5. The Criminal Procedure Code:Ratanlal and Dhirajlal
6. The Law of Evidence:Batuklal
7. Criminology and Penology:N.V. Paranjape

DSC-6: Practical based on DSC-5 (Legal Aspects of Crime)

Total Credits: 02

Total Contact Hours: 60 Hrs.

Maximum Marks: 50

Learning objectives and outcomes of the course:

This is a laboratory course based on **Legal Aspects of Crime (DSC-5)**. The course objectives and outcomes of this laboratory course have been added to the theory course. A minimum of 10 practical has to be covered in the semester for successful completion of the course.

ModuleNo.	List of Practical	Contact Hours
I	<ol style="list-style-type: none">1. Perform a case study on the judgment given by Sessions Court/High Court/Supreme Court of India on 'Offence of murder' by considering-Statement of facts, punishment under respective statute and order of the Court.2. Perform a case study on the judgment given by Sessions Court/High Court/Supreme Court of India on 'Offence of dowry death' by considering-Statement of facts, punishment under respective statute and conviction/acquittal order of the Court.3. Perform a case study on the judgment given by Sessions Court/High Court/Supreme Court of India on 'offence of rape' by considering-Statement of facts, punishment under respective statute and conviction/acquittal order of the Court.4. Perform a case study on the judgment given by Sessions Court/High Court/Supreme Court of India on 'Offence of dacoity' by considering-Statement of facts, punishment under respective statute and conviction/acquittal order of the Court.5. Perform a case study on the judgment given by Sessions Court/High Court/Supreme Court of India on 'Offence of cheating' by considering-Statement of facts, punishment under respective statute and conviction/acquittal order of the Court.6. Perform a comparative study on 'Offences against Property' in India and U.S.A.7. Perform a comparative study on 'sexual offenses' in India and U.S.A8. Visit to Police Station and report writing9. Visit to Central Prison and report writing10. Visit to Anti-Corruption Bureau and report writing11. Visit to District and Sessions Court and report writing.	60 Hrs.

	12. Any other practical designed by the faculty member based on recent advances/latest trends	
--	---	--

Skill Enhancement Courses (SEC)

SEC-1A: Forensic Photography		
Total Credits: 01 Maximum Marks: 50		Total Contact Hours: 15 Hrs.
<p>Learning Objectives of the Course: The learning objectives of the course are as follows:</p> <ul style="list-style-type: none"> • Students will gain an idea of forensic photography • Students will be able to explain various terms of photography • Students will be able to perform photography in various forensic setup <p>Course Outcomes (COs): After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • CO1: Define fundamentals in economic offences • CO2: Explain and interpret various offenses • CO3: Explain forensic accounting 		
ModuleNo.	Topics / actual contents of the syllabus	Contact Hours
I	<p>Basics of Photography</p> <ul style="list-style-type: none"> • Electromagnetic radiation • Image formation through lenses • Analog and digital photography • Analog Camera and its component • Digital camera and sensors • Terms related to photography: aperture, shutter speed, film speed, etc. 	07 Hrs.
II	<p>Photography in forensic setup</p> <ul style="list-style-type: none"> • Crime Scene Photography: Overall, mid-range and close-up • Evidence photography • Document photography • Photography of evidence on challenging surface 	08 Hrs.
<p>Suggested Readings/Reference Books:</p> <ol style="list-style-type: none"> 1. Nick Marsh, Forensic Photography: A Practitioner's Guide. 2. Keith Mancini, Fundamentals of Forensic Photography: Practical Techniques for Evidence Documentation on Location and in the Laboratory (Applications in Scientific Photography). 		

3. David R. Redsicker, *The Practical Methodology of Forensic Photography (Practical Aspects of Criminal and Forensic Investigations)*.
4. Edward M. Robinson, *Crime Scene Photography*.
5. Sanford Weiss, *Handbook of Forensic Photography*

SEC-1B: Economic Offenses

Total Credits: 01

Total Contact Hours: 15 Hrs.

Maximum Marks: 50

Learning Objectives of the Course:

The learning objectives of the course are as follows:

- Students will gain an idea of economic offenses
- Students will be able to identify Frauds and law enforcement agency dealing them
- Students will be able to understand forensic accounting

Course Outcomes (COs):

After completion of the course, students will be able to:

- CO1: Define fundamentals in economic offenses
- CO2: Explain and interpret various offenses
- CO3: Explain forensic accounting

ModuleNo.	Topics / actual contents of the syllabus	Contact Hours
I	Introduction to Economic Offences <ul style="list-style-type: none">• Fundamentals of economics in economic offenses.• Tax evasion. Excise duty evasion. Fraudulent bankruptcy. White collar crime. Economic exclusion. Black money.• Corruption and bribery of public servants. Money laundering and hawala transactions.• Insurance frauds. Corporate frauds. Bank frauds. Ponzi scheme. Pyramid scheme.• Illicit trafficking in contraband goods. Illicit trafficking in arms. Illicit trafficking in explosives. Illicit drug trafficking. Trafficking in human organs. Cultural objects trafficking.• Racketeering in employment. Racketeering in false travel documents.	07 Hrs.

II	<p>Economic offences and its examination</p> <ul style="list-style-type: none"> • Forensic accountancy and forensic auditing. • Valuation of economic losses. Violation of Intellectual Property Rights • Legislations to deal with different forms of economic offences. RBI Act. SEBI Act. Competition Commission of India Act. • Credit card frauds. • Law Enforcement agencies to deal with different forms of economic offences 	08 Hrs.
<p>Suggested Readings/Reference Books:</p> <ol style="list-style-type: none"> 1. R.V. Clarke, Situational Crime Prevention: Successful Case Studies, 2nd Edition, Criminal Justice Press, New York (1997). 2. S.P. Green, Lying, Cheating and Stealing: A Moral Theory of White-Collar Crime, Oxford University Press, Oxford (2006). 3. G. Geis, R. Meier, L. Salinger (Eds.), White-Collar Crime: Classic & Contemporary Views, Free Press, New York (1995). 4. J. Reiman, The Rich get Richer and the Poor get Prison, Allyn & Bacon, Boston (1998). Indian Audit and Accounts department, Audit of Fraud, Fraud Detection and Forensic Audit, 2007 5. State Crime Branch, Haryana, Investigation of Economic Offences 		

SEC-2A: Practical based on SEC-1A (Forensic Photography)

Total Credits: 01

Total Contact Hours: 30 Hrs.

Maximum Marks: 50

Learning objectives and outcomes of the course:

This is a laboratory course based on **Forensic Photography (SEC-1A)**. The course objectives and outcomes of this laboratory course have been added to the theory course. A minimum of 10 practical has to be covered in the semester for successful completion of the course.

ModuleNo.	List of Practical	Contact Hours
I	<ol style="list-style-type: none">1. To perform photography in various optical settings2. To perform photography in various lighting conditions3. To perform crime scene photography4. To perform photography of fingerprints5. To perform photography of other impression evidence (minimum three)6. To perform photography of documents7. To perform oblique light photography8. To perform photography in arson cases9. To perform photography of charred documents10. To perform photography of tool marks11. To perform photography of evidence on challenging surfaces12. Any other practical designed by the faculty member based on recent advances/latest trends	30 Hrs.

SEC-2B: Practical based on SEC-2B (Economic offenses)

Total Credits: 01

Total Contact Hours: 30 Hrs.

Maximum Marks: 50

Learning objectives and outcomes of the course:

This is a laboratory course based on **Economic offenses (SEC-1B)**. The course objectives and outcomes of this laboratory course have been added to the theory course. A minimum of 10 practical has to be covered in the semester for successful completion of the course.

ModuleNo.	List of Practical	Contact Hours
I	<ol style="list-style-type: none">1. To prepare a draft on fraudulent bankruptcy.2. To cite a case of money laundering and hawala transactions in India and prepare a note on it. (Minimum three)3. To cite a case involving bank fraud and suggest measures to prevent such crimes (Minimum three)4. To study a case involving illicit drug trafficking and trace the route by which the item was being smuggled.5. To prepare a report on the trafficking of heritage artefacts, including religious deities in India.6. To study the applications of accounting software.7. To study the applications of TALLY software.8. To review the legislative measures to deal with a particular economic offence, identifying the loopholes and suggesting ways to plug the loopholes.9. To prepare a schedule of national agencies involved in curbing economic offences. Outline their specific duties.10. Any other practical designed by the faculty member based on recent advances/latest trends	30 Hrs.

Generic/Open Elective for Other Faculty than Science and Technology (GE/OE)

GE/OE-1: Criminalistics		
Total Credits: 02 Maximum Marks: 50		Total Contact Hours: 30 Hrs.
<p>Learning Objectives of the Course: The learning objectives of the course are as follows:</p> <ul style="list-style-type: none"> • Students will gain an idea of forensic science and its applications • Students will learn and analyze the various crime scenes for their reconstruction • Students will have an understanding of various physical evidence • Students will understand various bloodstain patterns <p>Course Outcomes (COs): After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • CO1: Define and explain forensic science, the criminal justice system, crime and related organizations of forensic science • CO2: Explain and interpret criminal behavior and its connections with the crime scenario • CO3: Interpret laws and principles of forensic science • CO4: Classify and evaluate crime and its connections with victim and perpetrator • CO5: Analyze various crime scenario and apply it into a case study 		
ModuleNo.	Topics / actual contents of the syllabus	Contact Hours
I	<p>Introduction to Forensic Science</p> <ul style="list-style-type: none"> • Introduction to Forensic Science • Laws and principles of forensic science • Criminal justice system in India • Organizational set-up and functions of police, prosecution, and courts in India • Domains of Forensic Science • Ethics in forensic science 	10 Hrs.

II	<p>Crime and criminal behavior</p> <ul style="list-style-type: none"> • Crime and its elements • Classification of crime • Victim and its classification • Criminal and its classification • Criminology: definition and historical development • Criminal behavior: classical and non-classical theories, biological theories, physiological theories, psychogenic theory, economic theory, geographical theories, sociological and multi-factor theories 	10 Hrs.
III	<p>Organization related to Forensic Science</p> <ul style="list-style-type: none"> • Forensic Science Laboratory in India • Regulatory bodies: Directorate of Forensic Science Services, Bureau of Police Research and Development, National Crime Record Bureau • Intelligence agencies: Intelligence Bureau and Research and Analysis wing • Law enforcement agencies: CID, CBI, NIA, Interpol • Research Organizations: CDFD, CCMB, DRDO • Training Institutions: CDTI, NPA • Drug testing organizations: World/National Anti-doping Agency, National Drug Testing Laboratory 	10 Hrs.
<p>Suggested Readings/Reference Books:</p> <ol style="list-style-type: none"> 1. Richard Saferstien, Forensic Science: From the Crime Scene to the Crime Lab, 4th edition, Pearson, USA. 2. Suzane Bell, Forensic Science: An Introduction to Scientific and Investigative Techniques, Fifth Edition, CRC Press. 3. Max M. Houck and Jay A. Siegel, Fundamental of Forensic Science 4. Richard Saferstein, Handbook of Forensic Science, Volume-I, II and III 5. Forensic Science in Criminal Investigation and Trial, 4th edn.: B.R. Sharma 6. Criminology By Ram Ahuja 		

Semester-II

Detailed Curriculum of Semester-II

Discipline-Specific Core Courses (Major)

DSC-7: Crime Scene Investigation		
Total Credits: 02 Maximum Marks: 50		Total Contact Hours: 30 Hrs.
<p>Learning Objectives of the Course: The learning objectives of the course are as follows:</p> <ul style="list-style-type: none"> • Students will gain an idea of crime scene investigation • Students will learn the elements of crime scene management • Students will get an idea of physical evidence, its collection, and packaging <p>Course Outcomes (COs): After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • CO1: Define and explain the crime scene • CO2: Explain the elements of crime scene management • CO3: Classify and evaluate the physical evidence • CO4: Reconstruct the scene of crime 		
ModuleNo.	Topics / actual contents of the syllabus	Contact Hours
I	<p>Introduction to Crime Scene</p> <ul style="list-style-type: none"> • Crime Scene: Definition and types • Crime Scene Processing • Securing and isolating the crime scene. • Safety measures at crime scenes • Crime scene search methods • Documentation of crime scenes – photography, videography, sketching, and recording notes. 	10 Hrs.
II	<p>Crime Scene Management</p> <ul style="list-style-type: none"> • Crime Scene Management (CSM): Introduction & Components: Information, Manpower, Technology and Equipment and Logistics Management. • Duties of first responders at crime scenes. • Crime Scene Survey and initial documentation • Coordination between police personnel and forensic scientists at crime scenes Coordination between various experts at the crime scene 	10 Hrs.

III	Physical evidence <ul style="list-style-type: none"> • Physical evidence and its types • Marking of evidence • Collection, labelling and preservation of evidence • Chain of custody • Reconstruction of crime scene 	10 Hrs.
------------	--	----------------

Suggested Readings/Reference Books:

1. M. Byrd, Crime Scene Evidence: A Guide to the Recovery and Collection of Physical Evidence, CRC Press, Boca Raton (2001).
2. T.J. Gardener and T.M. Anderson, Criminal Evidence, 4th Ed., Wadsworth, Belmont (2001).
3. S.H. James and J.J. Nordby, Forensic Science: An Introduction to Scientific and Investigative Techniques, 2nd Edition, CRC Press, Boca Raton (2005).
4. W.J. Tilstone, M.L. Hastrup and C. Hald, Fisher's, Techniques of Crime Scene Investigation, CRC Press, Boca Raton (2013).

DSC-8: Practical based on DSC-7 (Crime Scene Investigation)

Total Credits: 02

Total Contact Hours: 60 Hrs.

Maximum Marks: 50

Learning objectives and outcomes of the course:

This is a laboratory course based on **Crime Scene Investigation (DSC-7)**. The course objectives and outcomes of this laboratory course have been added to the theory course. A minimum of 10 practical has to be covered in the semester for successful completion of the course.

ModuleNo.	List of Practical	Contact Hours
I	<ol style="list-style-type: none">1. To classify the given crime scenes2. To perform duty of first responding officer on the given mock crime scene3. To perform crime scene photography/videography4. To perform crime scene sketching/note-making5. To perform a preliminary survey of the crime scene6. To collect biological evidence from the scene of the crime7. To collect trace evidence from the scene of the crime8. To collect evidence of a chemical nature from the scene of the crime9. To prepare the forwarding letter for examination of evidence10. To investigate/reconstruct the given mock crime scenes11. Any other practical designed by the faculty member based on recent advances/latest trends	60 Hrs.

DSC-9: Introduction to C Programming

Total Credits: 02

Total Contact Hours: 30 Hrs.

Maximum Marks: 50

Learning Objectives of the Course:

The learning objectives of the course are as follows:

- Students will gain a basic idea of C-programming
- Students will understand functions and pointers in C programming
- Students will be able to perform string, structure and file handling in C programming

Course Outcomes (COs):

After completion of the course, students will be able to:

- CO1: Define and explain concepts of C-programming
- CO2: Understand the operators and control structure
- CO3: Apply functions and pointers of C-programming
- CO4: Apply structure, string and file handling of C-programming

ModuleNo.	Topics / actual contents of the syllabus	Contact Hours
I	Introduction to C Programming <ul style="list-style-type: none">• Problem-solving using computers: Algorithms and Flowcharts History, Structure of a C program, Functions as building blocks , Tokens Keywords, Identifiers, Variables, Constants ,Types of Data types• Operators and Expressions Operator types (arithmetic, relational, logical, assignment, bitwise, conditional, other operators), precedence and associativity rules. Input output functions,• Control structure: Branching (if, if else, switch), Looping (for, do-while, while)	10 Hrs.

II	<p>Functions and pointers</p> <ul style="list-style-type: none"> • Function: What is a function, Advantages of Functions, Standard library functions • User defined functions: Declaration, definition, function call, parameter passing (by value), return keyword, Scope of variables, storage classes, Recursion, • An Introduction to Pointers, Pointer Notation, Call by Reference. • Arrays: Array declaration, initialization, Types – one, two and multidimensional, Passing arrays to functions. 	10 Hrs.
III	<p>String, structure, and file handling</p> <ul style="list-style-type: none"> • String: What are Strings, More about Strings, pointers, and strings, standard library string functions: strlen(), strcpy(), strcat(), strcmp(), Two-Dimensional Array of Characters, Array of Pointers to Strings • Structures: Why to use Structures, declaring a Structure, Accessing Structure Elements, How Structure Elements are Stored • File handling: Data Organization, file operations, opening a file, reading from a file, trouble in opening a file, closing the file, counting characters, tabs, spaces, a file-copy program, writing to a file, file opening modes, string (line) I/O in files 	10 Hrs.
<p>Suggested Readings/Reference Books:</p> <ol style="list-style-type: none"> 1) Let Us C, Fifth edition Yashavant P. Kanetkar. 2) Programing in ANSI C , E- Balagurusamy 		

DSC-10: Practical based on DSC-9(Introduction to C Programming)		
Total Credits: 02		Total Contact Hours: 60 Hrs.
Maximum Marks: 50		
Learning objectives and outcomes of the course:		
This is a laboratory course based on Introduction to C Programming (DSC-9) . The course objectives and outcomes of this laboratory course have been added to the theory course. A minimum of 10 practical has to be covered in the semester for successful completion of the course.		
ModuleNo.	List of Practical	Contact Hours
I	<ol style="list-style-type: none"> 1. C Programming for Basic program 2. C programming for Variable and Mathematical Operations 3. C programming for simple Condition 4. C programming for Compound condition 5. C programming for Loop (For, While, do-while) 6. C programming on array 7. C programming on Functions 8. C programming on Structures 9. C Programming on Pointer 10. C programming on File handing 11. Any other practical designed by the faculty member based on recent advances/ latest trends 	60 Hrs.

DSC-11: Introduction to Psychology

Total Credits: 02

Total Contact Hours: 30 Hrs.

Maximum Marks: 50

Learning Objectives of the Course:

The learning objectives of the course are as follows:

- Students will gain an idea of psychology
- Students will learn and analyze the concepts of perception
- Students will have an understanding of criminal behavior

Course Outcomes (COs):

After completion of the course, students will be able to:

- CO1: Define psychology
- CO2: Explain sensation attention and perception
- CO3: Explain various perspective of cognition and intelligence

ModuleNo.	Topics / actual contents of the syllabus	Contact Hours
I	The Science of Psychology <ul style="list-style-type: none">• What is Psychology –Nature, Definition, and its goals• History of Psychology• Psychology: The Science, early schools of Psychology, modern perspectives• Scientific methods of study in Psychology- Naturalistic Observation, Experimental, Case Studies, and Survey	10 Hrs.
II	Sensation Attention and Perception <ul style="list-style-type: none">• Definition, Perceptual constancies, Gestalt Principle of Perception-perceptual organization and Grouping of Stimuli in Perceptual Organization, Depth Perception• Errors in Perception-Illusion, Hallucination, Individual Factors in Perception. Attention, Factors Influencing Attention, Types of Attention.• Offence of cheating with punishments.	10 Hrs.
III	Cognition and Intelligence	10 Hrs.

	<ul style="list-style-type: none"> • Attention, Factors Influencing Attention, Types of Attention, Thinking-mental images, concepts, prototypes, Problem Solving and Decision Making, Problems with Problem Solving. <p>Definition of Intelligence, Measuring Intelligence-concept in measuring intelligence (C.A., M.A., I.Q), Theories of Intelligence, Emotional intelligence, Individual Differences in Intelligence- mental retardation, giftedness, what is Psychological Tests? Types of Tests, Characteristics of a good test</p>	
--	--	--

Suggested Readings/Reference Books:

1. Psychology, (2006) Ciccarelli, S. K. & Meyer G. E. New Delhi; Perason Education
2. Introduction to Psychology, (1986) Morgan C.T., King R.A., Weisz J.R., Schopler J., McGraw-Hill Book Co.
3. Principles of General Psychology, 3rd ed. Kimble G.A., Garnezy, , New York.
4. Psychology, (2001), Baran R.A. New Delhi; Person Education Pvt.Ltd.
5. Cognitive Psychology Mind and Brain', Edward E. Smith, Stephen M. Kosslyn, New Delhi, Pearson Education.
6. Introduction to Psychology, Parameswaran, E.G., BeenaC.Tata McGraw-Hil, New Delhi.
7. Manashatra-EkParichay, (2004), Dr. Padhye V.S.Aurangabad; RenukaPrakashan.
8. Psychology-An Introduction, Thakkar P., Dr. Ambekar A.,

DSC-12: Practical based on DSC-11(Introduction to Psychology)

Total Credits: 02

Total Contact Hours: 60 Hrs.

Maximum Marks: 50

Learning objectives and outcomes of the course:

This is a laboratory course based on **Introduction to C Programming (DSC-11)**. The course objectives and outcomes of this laboratory course have been added to the theory course. A minimum of 10 practical has to be covered in the semester for successful completion of the course.

ModuleNo.	List of Practical	Contact Hours
I	<ol style="list-style-type: none">1. Mental health inventory2. Recall-Recognition3. Bilateral Transfer4. Maze learning5. Span of Attention6. IPAT anxiety scale7. Type A/B behavior patterns- Upinder Dhar& Jain8. Sinha's Comprehensive Anxiety Test – A.K.P. Sinha & L.N.K. Sinha9. Facial expression10. Illusion (Muller-Lyre)11. Psychological analysis of personality (any character from book)12. Self-expression inventory13. Mental health battery14. Mobile phone addiction test15. Assertiveness inventory16. Any other practical designed by the faculty member based on recent advances/ latest trends	60 Hrs.

Vocational Skill Courses (VSC)

VSC-1A: HTML Programming		
Total Credits: 01 Maximum Marks: 50		Total Contact Hours: 15 Hrs.
<p>Learning Objectives of the Course: The learning objectives of the course are as follows:</p> <ul style="list-style-type: none"> • Students will gain an idea of basics of HTML Programming • Students will able to create HTML Pages with various links • Students will able to create HTML Pages with table, images and other kind of inputs <p>Course Outcomes (COs): After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • CO1: Describe terms related to HTML Programming • CO2: Create HTML Pages with various links • CO3: Create HTML Pages with table, images and other kind of inputs 		
ModuleNo.	Topics / actual contents of the syllabus	Contact Hours
I	<p>HTML Programming-I</p> <ul style="list-style-type: none"> • Introduction, The Basics: The Head, the Body, Colors, Attributes, Lists, ordered and unordered • Links: Introduction, Relative Links, Absolute Links, Link Attributes, Using the ID Attribute to Link Within a Document • Images: Putting an Image on a Page, Using Images as Links, Putting an Image in the Background 	07 Hrs.
II	<p>HTML Programming-II</p> <ul style="list-style-type: none"> • Tables: Creating a Table, Table Headers, Captions, Spanning Multiple Columns, Styling Table • Forms: Basic Input and Attributes, Other Kinds of Inputs, Styling forms with CSS, Where to Go From Here 	08 Hrs.
<p>Suggested Readings/Reference Books:</p> <ol style="list-style-type: none"> 1. Introduction to HTML and CSS -- O'Reilly, 2010 2. Jon Duckett, HTML and CSS, John Wiely, 2012 		

VSC-1B: Blood Pattern Analysis

Total Credits: 01

Total Contact Hours: 15 Hrs.

Maximum Marks: 50

Learning Objectives of the Course:

The learning objectives of the course are as follows:

- Students will gain an idea of various terms related to bloodstains
- Students will be able to explain the mechanism of bloodstain formation
- Students will be able to determine parameters related to bloodstain patterns

Course Outcomes (COs):

After completion of the course, students will be able to:

- CO1: Describe terms related to HTML Programming
- CO2: Create HTML Pages with various links
- CO3: Create HTML Pages with table, images and other kind of inputs

ModuleNo.	Topics / actual contents of the syllabus	Contact Hours
I	Introduction <ul style="list-style-type: none">• Introduction and objectives of Blood Pattern Analysis (BPA)• History of BPA• Classification of Bloodstains and bloodstain pattern• Biological and Physical properties of human blood• Determination of the angle of impact	07 Hrs.
II	Dynamics of BPA <ul style="list-style-type: none">• Impact of height and surface on the shape and size of bloodstains• Spatter associated with secondary and projection mechanism• Altered bloodstain patterns• Determination of area of convergence and area of origin• Detection and Enhancement of latent bloodstains	08 Hrs.

Suggested Readings/Reference Books:

1. Stuart H. James, Paul E. Kish, T. Paulette Sutton, Principles of Bloodstain Pattern Analysis: Theory and Practice, CRC Press
2. Tom Bevel and Ross M. Gardner, Bloodstain pattern analysis with an introduction to crime scene reconstruction, CRC Press.

VSC-2A: Practical based on VSC-1A (HTML Programming)

Total Credits: 01

Total Contact Hours: 30 Hrs.

Maximum Marks: 50

Learning objectives and outcomes of the course:

This is a laboratory course based on **HTML Programming (VSC-1A)**. The course objectives and outcomes of this laboratory course have been added to the theory course. A minimum of 10 practical has to be covered in the semester for successful completion of the course.

ModuleNo.	List of Practical	Contact Hours
I	<ol style="list-style-type: none"> 1. Create an HTML document with the following formatting options (minimum two): <ol style="list-style-type: none"> a) Bold b) Italic c) Underline d) Headings (Using H1 to H6 heading styles) e) Font (Type, Size and Color) f) Background (Colored background/Image in background) g) Paragraph h) Line Break i) Horizontal Rule j) Pre-tag 2. Create an HTML document which consists of (Minimum Two Combinations): <ol style="list-style-type: none"> a) Ordered List b) Unordered List c) Nested List d) Image 3. Create an HTML document which implements Internal linking as well as External linking. 4. Create a table using HTML which consists of columns for Roll No., Student's name and grade. 5. Create a table using HTML which consists of three rows and three columns, insert image in the box of third row and third column. 6. Create a form using HTML which has the following types of controls (Minimum Two combinations): <ol style="list-style-type: none"> a) Text Box b) Option/radio buttons c) Check boxes d) Reset and Submit buttons 7. Create HTML documents having multiple frames (Minimum Two Combinations) 	30 Hrs.

--	--	--

VSC-2B: Practical based on VSC-1B (Blood Pattern Analysis)

Total Credits: 01

Total Contact Hours: 30 Hrs.

Maximum Marks: 50

Learning objectives and outcomes of the course:

This is a laboratory course based on **Blood Pattern Analysis (VSC-1B)**. The course objectives and outcomes of this laboratory course have been added to the theory course. A minimum of 10 practical has to be covered in the semester for successful completion of the course.

ModuleNo.	List of Practical	Contact Hours
I	<ol style="list-style-type: none">1. To document bloodstain patterns2. To collect sample from bloodstain patterns3. To determine the origin of the blood4. To classify the bloodstain patterns5. To determine angle of impact from the bloodstain6. To study influence of angle on formation of bloodstain pattern7. To study influence of height on formation of bloodstain pattern8. To study influence of surface on formation of bloodstain pattern9. To study influence of volume on formation of bloodstain pattern10. To study influence of time on bloodstain patterns11. To study influence of temperature on bloodstain patterns12. To study influence of humidity on bloodstain patterns13. To determine area of convergence and area of origin14. To study bloodstain pattern using computer software program like Hemospat or BackTrack	30 Hrs.

Generic/Open Elective for Other Faculty than Science and Technology (GE/OE)

GE/OE-2: Handwriting Examination		
Total Credits: 02 Maximum Marks: 50		Total Contact Hours: 30 Hrs.
<p>Learning Objectives of the Course: The learning objectives of the course are as follows:</p> <ul style="list-style-type: none"> • Students will gain an idea of important features in handwriting identification • Students will learn the basis of handwriting characteristics • Students will have an understanding of significance of forensic documentation <p>Course Outcomes (COs): After completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • CO1: Define and explain important features in handwriting identification • CO2: Explain and interpret basis of handwriting characteristics • CO3: Explain the significance of forensic documentation 		
ModuleNo.	Topics / actual contents of the syllabus	Contact Hours
I	<p>Handwriting Identification</p> <ul style="list-style-type: none"> • Basis of handwriting identification. • Characteristics of handwriting, scope and application. • Class and individual characteristics. Arrangement, alignment, margin, slant, speed, pressure, spacing, line quality, embellishments, movement and pen lifts. • Factors influencing handwriting-physical, mechanical, genetic and physiological 	10 Hrs.
II	<p>Handwriting Examination</p> <ul style="list-style-type: none"> • Basis of handwriting comparison. • Collection of handwriting samples. • Forgery detection. • Counterfeiting. • Examination of altered and erased documents. Tools used in handwriting examination. 	10 Hrs.

III	<p>Handwriting Recognition</p> <ul style="list-style-type: none"> • Basis of handwriting recognition. • Off-line and on-line handwriting recognition. • Steps involved in handwriting recognition – pre-processing, feature extraction and classification. • Applications of handwriting recognition 	10 Hrs.
<p>Suggested Readings/Reference Books:</p> <ol style="list-style-type: none"> 1. O. Hilton, Scientific Examination of Questioned Documents, CRC Press, Boca Raton (1982). 2. A.A. Moenssens, J. Starrs, C.E. Henderson and F.E. Inbau, Scientific Evidence in Civil and Criminal Cases, 4th Edition, Foundation Press, New York (1995). 3. R.N. Morris, Forensic Handwriting Identification: Fundamental Concepts and Principles, Academic Press, London (2000). 4. E. David, The Scientific Examination of Documents – Methods and Techniques, 2nd Edition, Taylor & Francis, Hants (1997). 5. Z. Liu, J.H. Cai and R. Buse, Handwriting Recognition: Soft Computing and Probabilistic Approach (Volume 133), Springer Science and Business Media (2003) 		

XXXXXXXXXXXXXXXXXXXX