



Shri Vaishnav Vidyapeeth Vishwavidyalaya

M.Sc. (Forensic Science)

SEMESTER IV / X (M.Sc. / B.Sc. MSc..)

Course Code	Course Name	TEACHING & EVALUATION SCHEME (THEORY)						
		End Sem University Exam	Two Term Exam	Teachers Assessment ^{t*}	L	T	P	Credit
MSFS401	Scientific Investigation of Crime	60	20	20	4	1	2	6

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment shall be based following components: Quiz/Assignment/Project/Participation in Class, given that no component shall exceed more than 10 marks.**

UNIT I: Physical patterns

Introduction- Physical patterns in identification, individualization and reconstruction.

Pattern due to blood, Pattern on glass, firearms related patterns, patterns in arson and fires served articles and physical matches, comparison of imprints, indentation, striation, typical presentations, Gait patterns, Bite patterns. Modus operandi, portrait parley.

UNIT II: Death Investigation

Cause of death (Natural and Unnatural), Determination of nature of death and general characteristics of suicides, murder and accidents.

Impression of body at scene of crime, inspection of scene of crime. Role of skeletal remains in investigation. Forensic investigation in firearm related cases. Forensic investigation in asphyxia deaths. Forensic investigation in poisoning cases.

UNIT III: Motor Vehicle Investigation

Identification and search of physical evidences. Involvement of vehicle in crime, theft investigation. Investigation in hit and run cases. Role of skid marks, scuff marks etc. Inspection of Vehicles, glass fracture analysis, paint chip examination. Motor Vehicle Claim Investigation.

UNIT IV: Investigation in offences against properties

Criminal Trespass, House Breaking and Theft (HBT), Burglary and Robbery, Investigation in fire and Arson Cases, Investigation in cases of Mass Disaster, Investigation in explosive related cases. Investigation in Bank Frauds.

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UNIT V: DNA in Police Work

Role of DNA in sexual offence, disputed paternity, child swapping, identity in dead and living person, civil immigration. Veterinary and wild life and agriculture cases. Legal standards of admissibility of DNA Profiling

Reference Books:

1. B.R. Sharma: Forensic Science in Criminal Investigation and Trials, Universal Law Publishing; Fourth edition 2013.
2. James, S.H and Nordby, J.J.: Forensic Science: An introduction to scientific and investigative techniques 3rd edit. CRC Press, USA.
3. Nanda, B.B. and Tewari, R.K.: Forensic Science in India: A vision for the twenty first century Select Publisher, New Delhi (2001)
4. Richard Saferstein. Criminalistics: An Introduction to Forensic Science. 10th edit Prentice-Hall, New Jersey.
5. Deforest, Gansellen&Lee : Introduction to Criminalistics.
6. Kirk (2000) Vehicular Accident investigation and reconstruction.
7. H. James, Wouldiam G. Eckert (1999) Interpretation of Blood stain evidence at Crime Scene, 2nd edition, CRC Press.
8. N. Gilbert (1993) Criminal Investigation; Third edition, Macmillan Publishing company.
9. Bernard Robertson and G.A. Vignaur (1995) Interpreting evidence John Wiley and Sons Ltd.
10. Kirk (1953) Criminal Investigation Interscience Publisher Inc. New York.
11. B. R. Sharma (1980) Footprints, Tracks and Trials. Central Law Agency. Allahabad.
12. Koblinsky et al. (2005) DNA -Forensic and Legal Implications.

Practicals:

1. Identification of Some poisonous seeds.
2. Determination of speed of Vehicle involved in Hit & Run cases.
3. To study various wear and tear characteristics on footwear.
4. Reconstruction and evolution of different types of Crime scene.
5. Analysis of gait patterns under various Circumstances.
6. Analysis of post blast explosive residues.
7. Analysis of questioned document related to bank fraud.
8. Casting and analysis of Pugmarks of Animals.

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Course Code	Course Name	TEACHING & EVALUATION SCHEME (THEORY)						
		End Sem University Exam	Two Term Exam	Teachers Assessment t*	L	T	P	Credit
MSFS402	Digital Forensic and Cyber Crime	60	20	20	4	1	2	6

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

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Learning Objectives: After studying this paper, student will know-

1. The fundamental and forensic examinations of digital evidence.
2. The legal and privacy issues of digital evidence.
3. The tools of cyber forensics.
4. The types of cybercrime.

Learning Outcomes:After studying this paper,

1. The student will be able to understand the fundamental and forensic examinations of digital evidence.
2. They will be familiar with legal and privacy issues of digital evidence.
3. They will be able to analyse the tools of cyber forensics.
4. They will be able to understand the different types of cybercrime.

UNIT I: Digital Forensic I

Cyber Crime and digital evidence, types of cybercrimes, digital evidence, Digital Vs Physical Evidence, Nature of Digital Evidence, Precautions while dealing with Digital Evidence. Introduction to Cyber forensic, Cyber forensic steps (Identification, Seizure, Acquisition, Authentication, Presentation, Preservation), Computer forensic expert, Cyber forensic investigation process, The goal of the forensic investigation, Theft of information, Violation of security policies or procedures, Intellectual property infractions, Electronic tampering), Determine the impact of incident, Auditing V/s Cyber forensic investigations.

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UNIT II: Digital Forensic II

Seizure of suspected computer. Preparation required prior to seizure. Protocol to be taken at the scene. Extraction of information from the hard disk. Treatment of exhibits. Creating bitstream of the original media. Collection and seizure of magnetic media. Legal and privacy issues. Examining forensically sterile media. Restoration of deleted files. Password cracking and E-mail tracking. Encryption and decryption methods. Tracking users.

UNIT III: Cyber Forensic Tools and Utilities

Introduction, Examining a Breadth of Products, Cyber Forensic Tools Good, Better, Best: What's the Right Incident Response Tool for Your Organization? , Tool Review Forensic Toolkit, EnCase, Cyber check suites, what is disk Imaging etc. Specifications for Forensic tools Tested.

UNIT IV: Evidence Collection and Analysis Tools

Volatile and Non-volatile Evidences collection (Safe back, Get time, FileList, Filecvt and Excel, Get free, Swap files and Get swap ,Get Slack, Temporary Files), Detailed Procedures for Obtaining a bit stream backup of hard drive, File System (Details of File system, Data Structure Of File System, Data Recovery in Different file system).

UNIT V: Cyber Crime

Definition and types of computer crimes. Distinction between computer crimes and conventional crimes. Reasons for commission of computer crimes. Computer virus, and computer worm – Trojan horse, trap door, super zapping, logic bombs. Types of computer crimes – computer stalking, pornography, hacking, computer terrorism. An overview of hacking, spamming, phishing and stalking.

Reference Books:

1. Digital Forensics: Digital Evidence in Criminal Investigations by *Angus McKenzie Marshall*
2. Cyber Forensic A Field Manual for Collecting, Examining and Preserving Evidence of Compute Crimes by *Albert J Menendez*. Auerbach Publications.
3. Cyber Forensic by *Marecella Menendez*.
4. Computer Forensic by *Newman*.
5. Cyber Crime Investigation Field Guide, by *B Middleton*
6. Incident Response and Computer Forensic by *Kelvin Mandia*, TMH Publication.

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Practicals

1. Identification , Seizure , Search of Digital media Evidence Collection
2. Demonstration of various Forensic tools like Partition magic, Encase etc.
3. Data Recovery, Deleted File Recovery viewing small Disk.
4. Demonstration of Concealment Techniques (Cryptography PGP)
5. Demonstration of Concealment Techniques (Stenography)
6. Demonstration of other Concealment Techniques to trace routes followed by e-mails & chats.
7. To identify the IP address of the sender of e-mails.
8. To demonstrate concealment techniques using cryptographic PGP
9. To acquire data from PCs/laptops/HDDs/USBs, pen drives, memory cards and SIM cards.
10. To use symmetric and asymmetric keys for protection of digital record.
11. To carry out imaging of hard disks from different software.
12. Networking commands- like ping, IP config. Etc.
13. Tracing E-mail, finding senders IP address, of received email, tracing route of email received using tool available on internet, e.g. Visual Trace Route etc.

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SUBJECT CODE	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
		THEORY			PRACTICAL		L	T	P	CREDITS
		END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
MBAI301C	Advanced Human Values and Professional Ethics	60	20	20	-	-	4	-	-	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based on following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objective

The objective of the course is to disseminate the theory and practice of moral code of conduct and familiarize the students with the concepts of “right” and “good” in individual, social and professional context

Examination Scheme

The internal assessment of the students’ performance will be done out of 40 Marks. The semester Examination will be worth 60 Marks. The question paper and semester exam will consist of two sections A and B. Section A will carry 36 Marks and consist of five questions, out of which student will be required to attempt any three questions. Section B will comprise of one or more cases / problems worth 24 marks.

Course Outcomes

1. Help the students to understand right conduct in life.
2. To equip students with understanding of the ethical philosophies, principles, models that directly and indirectly affect personal and professional life.

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Unit I: Inculcating Values at Workplace

1. Values: Concept, Sources, Essence
2. Classification of Values.
3. Values in Indian Culture and Management: Four False Views, Value Tree
4. Eastern and Western Values; Values for Global Managers

Unit II: Professional Ethics

1. Ethics: Concept, Five P's of Ethical Power, Organisational Tools to Cultivate Ethics
2. Theories of Ethics: Teleological and Deontological
3. Benefits of Managing Ethics in an Organisation
4. Ethical Leadership

Unit III: Indian Ethos and Management Style

1. Indian Ethos and Workplace
2. Emerging Managerial Practices
3. Ethical Considerations in Decision Making and Indian Management Model
4. Core Strategies in Indian Wisdom and Ethical Constraints

Unit IV: Human Behavior – Indian Thoughts

1. Guna Theory
2. Sanskara Theory
3. Nishkama Karma
4. Yoga: Types, Gains; Stress and Yoga

Unit V: Spirituality and Corporate World

1. Spirituality: Concept, Paths to Spirituality
2. Instruments to achieve spirituality
3. Vedantic Approach to Spiritual and Ethical Development
4. Indian Spiritual Tradition.

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Suggested Readings

1. Kausahl, Shyam L. (2006). *Business Ethics – Concepts, Crisis and Solutions*. New Delhi:Deep and Deep Publications Pvt. Limited
2. Murthy, C.S.V. (2012). *Business Ethics –Text and Cases*. Himalaya Publishing House:Mumbai
3. Chakraborty, S. K. (1999). *Values and Ethics for Organizations*. Oxford university press
4. D.Senthil Kumar and A. SenthilRajan (2008). *Business Ethics and Values*. Himalaya Publishing House: Mumbai

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Course Code	Course Name	TEACHING & EVALUATION SCHEME (Dissertation)					
		End Sem University Exam	Teachers Assessment*	L	T	P	Credit
MSFS403	Internship	60	40	0	0	0	2

Internship

Every student will carry out Internship in laboratory of one month under the supervision of Supervisor/(s) (Internal/External). Every student will be required to present seminar talk towards the end of the semester and should submit a report of the same presenting the work carried out by him/her in the semester.

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Course Code	Course Name	TEACHING & EVALUATION SCHEME (Dissertation)					
		End Sem University Exam	Teachers Assessment*	L	T	P	Credit
MSFS404	Dissertation	120	80	0	0	0	10

Dissertation

Every student will carry out dissertation under the supervision of Supervisor/(s) (Internal/External). The topic shall be approved by a Committee constituted by the Head of the concerned Institute. Every student will be required to present two seminar talks, first at the beginning of the Dissertation (Phase-I) to present the scope of the work and to finalize the topic, and second towards the end of the semester, presenting the work carried out by him/her in the semester.

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