Programme Matrix: Bachelor of Science- Forensic Science [2019 Batch]

FACULTY OF LIFE SCIENCES

B. Sc. (Honours) Forensic Science

Programme Educational Objectives

PEO1: To acquire theoretical and practical knowledge in Forensic Science.

PEO2: To instill scientific temperament to contribute towards human welfare.

PEO3: To empower the students with employability skills and professional ethics.

Programme Outcome

After the successful completion of the 3 year B.Sc. (Honours) Forensic Science Programme, the graduate will be able to:

PO1: Apply professional and social skills to cater to the needs of the society, national and global community.

Programme Specific Outcomes

After the successful completion of the 3 year B.Sc. (Honours) Forensic Science Programme, the graduate will be able to:

PSO1: Appraise national and global perspectives in Forensic Science.

PSO2: Apply investigation skills with professional ethics in the domain of Forensic Science.

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I Semester

Course Type	Course Code	Course Title	Course Outcomes
Compulsory Courses			
AECC	**ENG103A11**	**English**	1. Describe and differentiate between genres of poetry like ballads and sonnets. 2. Analyze critically the writing style of prose writers. 3. Develop interest to appreciate one act plays. 4. Apply the rules of punctuation to write concisely. 5. Demonstrate proficiency in creating leaflets and brochures.
DSCC	**FSC204A11**	**Introduction to Forensic Science**	1. Describe the history and scope of forensic science 2. Apply the principles of forensic science during the course of forensic investigation and analysis 3. Appraise the tools and techniques used in forensic science 4. Sketch the organizational structure of a forensic science laboratory in india 5. Compare the roles and responsibilities of the crime detection agencies in india
DSCL	**FSC2L2A11**	**Introduction to Forensic Science Practical**	1. Trace the flow of evidence from crime scene to court 2. Create forensic reports analyzing a case study based on forensic evidence 3. Perform statistical analysis on crime data obtained from national crime records bureau
DSCC	**FSC204A12**	**Crime and Society**	1. Discuss the functioning of criminal justice system in India 2. Apply the theories of crime to crime cases 3. Categorize criminal profiles of offenders 4. Relate the situations of crime to the factors of crime. 5. Justify criminal justice system in India
DSCL	**FSC2L2A12**	**Crime and Society Practical**	1. Develop a criminal profile by analyzing a case study 2. Adopt the schools of criminology while analyzing the crime and criminals 3. Build strategies for rehabilitating criminals
GE	**FSC304A11**	**Botany**	1. Describe the structure of DNA and RNA virus. 2. Explain the structure and reproduction of algae and function. 3. Enumerate morphology and life cycle of archegoniate. 4. Identify plant tissues and physiology of vascular plants
GEL	**FSC3L1A11**	**Botany Practical**	1. Create vegetative structure of algae and fungi. 2. Trace permanent slides of vascular tissues of plants.

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II Semester

Course Type	Course Code	Course Title	Course Outcomes
MIL [Any ONE to be Opted]			
AECC	**AEN103A21**	**Additional English II**	1. Explain the meaning of select poetry, prose, and drama of writers from India, England, Chile, France, Nigeria and Canada by placing the texts in the cultural context. 2. Analyze the issues of race, problems faced by fisher community and women, futility of war, societal fabrications, Nazism, religion, spirituality, partition, and the political tensions in professional field relate and frame opinions on racial issues, war, struggles of women and the marginalized community. 3. Interpret film text 'Life is beautiful' and learn the historical background of the reign of Hitler and the injustices in concentration camps. 4. Solve questions on idioms, super ordinates, and hyponyms.
AECC	**HIN103B21**	**Hindi II**	1. काव्य अध्ययन में संगीतात्मक शैली को समझ लेता है 2. काव्य को विश्लेषण करने की क्षमता 3. काव्य में निहित विचारों का मूल्यांकन 4. काव्य सृजन करने का कौशल्य 5. व्याकरणिक भाषा का ज्ञान एवं स्पष्टता
AECC	**KAN103B21**	**Kannada II**	1. ಕನ್ನಡ ಸಾಹಿತ್ಯದ ವಿವಿಧ ಪ್ರಕಾರಗಳನ್ನು ತಿಳಿಯುವರು. 2. ಸಾಹಿತ್ಯದಲ್ಲಿ ಅಡಗಿರುವ ಸಾಮಾಜಿಕ ಮೌಲ್ಯಗಳನ್ನು ಅಳವಡಿಸಿಕೊಳ್ಳುವರು. 3. ಭಾಷಾ ಕೌಶಲ್ಯಗಳನ್ನು ಮೆರುಗುಗೊಳಿಸಿಕೊಳ್ಳುವರು.
Compulsory Courses			
DSCC	**FSC204A21**	**Criminal Law**	1. Explain the components of the criminal justice system 2. Appraise the provisions under indian penal code, indian evidence act and code of criminal procedure 3. Compare the role and responsibilities of judicial departments in the indian context 4. Describe the salient feature minor acts pertaining to socio-economic and environment crimes
DSCL	**FSC2L2A21**	**Criminal Law Practical**	1. Follow the process of a case trial in the court 2. Combine provisions of indian penal code and minor acts during prosecution 3. Develop case reports based on legal provisions and forensic evidence
DSCC	**FSC204A22**	**Forensic Psychology**	1. Appraise the significance of psychology in law 2. Relate psychology with criminal behaviour 3. Demonstrate interview, non-verbal detection and statement analysis methods used in detection of deception 4. Describe polygraph, narco-analysis an brain electrical oscillation signature profiling methods for detection of deception
DSCL	**FSC2L2A22**	**Forensic Psychology Practical**	1. Demonstrate the administration and scoring of the Minnesota Multiphasic Personality Inventory 2. Execute the right psychological test in a forensic setting 3. Create reports based on the results obtained from forensic testing
AECC	**NES102A01**	**Environmental Science**	1. Discuss the overexploitation of natural resources. 2. Appraise the components of the ecosystem. 3. Assess the conservation of biodiversity. 4. Criticize the mitigation process of natural disasters. 5. Survey the effects of pollution in the environment. 6. Recommend the various policies for the betterment of the environment.

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III Semester

Course Type	Course Code	Course Title	Course Outcomes
Compulsory Courses			
DSCC	**FSC204A31**	**Forensic Dermatoglyphics**	1. Summarize the history and development of fingerprints 2. Distinguish the patterns and minutiae characteristics of fingerprints 3. Compare prints obtained in the crime scene with standard prints 4. Illustrate the procedure for lifting, collection and preservation of fingerprints 5. Appraise the forensic importance of footprints, palmprints, lip prints and ear prints
DSCL	**FSC2L2A31**	**Forensic Dermatoglyphics Practical**	1. Master the technique of development and collection of latent fingerprints 2. Perform ridge tracing, ridge counting and marking core and delta on a fingerprint slip 3. Adopt henry's classification for analyzing fingerprints
DSCC	**FSC204A32**	**Technological Methods in Forensic Science**	1. Illustrate the working principle and forensic applications of light microscope, electron microscopes and comparison microscope 2. Explain the principle and forensic applications of thin layer, gas and liquid chromatography 3. Appraise the working principle and forensic application of x-ray spectrometry, ultraviolet-visible, infrared, atomic absorption, atomic emission and mass spectroscopy 4. Describe sodium dodecyl sulfate–polyacrylamide gel electrophoresis, agarose gel electrophoresis and neutron activation analysis 5. Relate the importance of photography and videography in crime scene documentation
DSCL	**FSC2L2A32**	**Technological Methods in Forensic Science Practical**	1. Perform separation of ink using Thin Layer Chromatography, and separation of acetone and chloroform using paper chromatography 2. Demonstrate colorimetric analysis of coloured compounds. 3. Create a documentation of a crime scene and its exhibits using photography and videography
DSCC	**FSC204A33**	**Criminalistics**	1. Practice the techniques of collecting, packaging and preserving of physical and trace evidence and reconstruction of crime scene 2. Illustrate the methods of securing, searching and documenting crime scenes 3. Appraise the tools and techniques for analysis of glass and paint 4. Employ the tools and techniques for the analysis of fibre, soil and tool marks
DSCL	**FSC2L2A33**	**Criminalistics Practical**	1. Demonstrate barricading procedures at a crime scene 2. Adopt the techniques to collect and preserve paint and soil samples from a crime scene 3. Perform density gradient analysis of soil, physical matching of glass and cloth samples

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IV Semester

Course Type	Course Code	Course Title	Course Outcomes
Compulsory Courses			
DSCC	**FSC204A41**	**Forensic Chemistry**	1. Describe the classification, synthesis and characteristics explosives 2. Illustrate the chemistry and patterns of fire 3. Assess and investigate a scene of explosion 4. Appraise the procedure for analysis and comparison of petroleum products 5. Demonstrate the method of searching, collecting, preserving and analyzing arson evidence
DSCL	**FSC2L2A41**	**Forensic Chemistry Practical**	1. Perform filter paper and density test of petroleum products. 2. Demonstrate the density and flash point analysis of kerosene and diesel 3. Formulate reports on cases of arson and explosion
DSCC	**FSC204A42**	**Questioned Documents**	1. Describe the tools employed for examination of questioned documents 2. Explain the examination of forgeries, charred documents, disguised writing and anonymous letters 3. Point out specific characteristics in signature and handwriting 4. Compare documents, handwriting, and signatures with standards 5. Appraise the forensic significance of printed and security documents
DSCL	**FSC2L2A42**	**Questioned Documents Practical**	1. Perform the detection of simulated and traced forgery 2. Master the technique of handwriting and signature analysis 3. Adopt section 45 of indian evidence act and section 498a of indian penal code to explain a case of questioned document examination
DSCC	**FSC204A43**	**Forensic Biology**	1. Explain the method of collection and preservation of blood, saliva, semen and sweat samples 2. Appraise the fundamentals and significance of wildlife forensics 3. Assess the forensic significance of hair samples in crime investigations. 4. Describe the importance of insects in forensic science 5. Explain the value of botanical samples in forensic science
DSCL	**FSC2L2A43**	**Forensic Biology Practical**	1. Perform microscopic examination of hair follicle to identify the species 2. Demonstrate the examination of diatoms and pollen and establish a link with the crime scene 3. Create reports using case studies where insects and diatoms are used as evidence

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V Semester

Course Type	Course Code	Course Title	Course Outcomes
Dscc	**Fsc204a51**	**Forensic ballistic**	1. Classify firearms based on their firing and loading mechanisms. 2. Describe the effect of air resistance base drag, drop, drift; yaw, shape of projectile and stability on external ballistics 3. Explain the effect of projectile on target surfaces 4. Appraise the characteristics of an ammunition 5. Examine bullets, cartridge cases, gunshot residue and firearm injuries
Dscl	**Fsc2l2a51**	**Forensic ballistic practical**	1. Demonstrate the collection and analysis of gunshot residue from a firearm and the shooter 2. Master the technique of comparison of the bullet and cartridge case. 3. Perform the collection of bullets, cartridge case and test bullet for examination
Dscc	**Fsc204a52**	**Forensic toxicology**	1. Describe the routes of exposure, absorption, metabolism and excretion of poisons. 2. Appraise the techniques of extraction and analysis of poisons 3. Categorize poisons used in accidental, suicidal and homicidal poisoning 4. Compare the characteristics of narcotics, stimulants, depressants and hallucinogens 5. Illustrate the process of collection, preservation and analysis of narcotics, drugs and psychotropic substances
Dscl	**Fsc2l2a52**	**Forensic toxicology practical**	1. Demonstrate thin layer chromatography to separate and identify drugs of abuse 2. Adopt screening and spot tests to identify pesticides, metallic and organic poisons. 3. Prepare iodoform for the analysis of alcohol
Dse	**Fsce04a51**	**Forensic serology**	1. Demonstrate the collection of blood, saliva, sweat, milk and urineat the scene of crime 2. Describe the significance of blood, saliva, sweat, milk and urine in forensic science 3. Appraise the morphology, collection and evaluation of semen samples 4. Explain the significance of cellular antigens, extracellular proteins, intracellular enzymes and genetic markers in forensic science 5. Analyse blood stain pattern and reconstruct a crime scene
Dsel	**Fscel2a51**	**Forensic serology practical**	1. Execute benzidine, kastle-meyer and teichman-takayama tests to analyse blood samples 2. Demonstrate the set up and working of cross over electrophoresis 3. Formulate reports based on blood spatter analysis
Dse	**Fsce04a52**	**Dna typing**	1. Explain the principles of heredity and Mendelian laws 2. Appraise the importance of electrophoresis, spectrophotometry, and polymerase chain reaction in extraction and quantification of DNA 3. Describe the principle, procedure and application of restriction fragment length polymorphism 4. Relate genetic fingerprinting and DNA testing to paternity disputes 5. Summarize the significance of DNA in identifying unrecognizable and unknown bodies
Dsel	**Fscel1a42**	**Dna typing practical**	1. Demonstrate the separation of amino acids using thin layer chromatography 2. Master the technique of extraction of DNA from wet and dry blood 3. Perform the separation of DNA using gel electrophoresis 4. Formulate a report based on paternity disputes using DNA typing analysis

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VI Semester

Course Type	Course Code	Course Title	Course Outcomes
DSCC	**FSC204A61**	**Forensic Ballistic**	1. Classify firearms based on their firing and loading mechanisms. 2. Describe the effect of air resistance base drag, drop, drift; yaw, shape of projectile and stability on external ballistics 3. Explain the effect of projectile on target surfaces 4. Appraise the characteristics of an ammunition 5. Examine bullets, cartridge cases, gunshot residue and firearm injuries
DSCL	**FSC2L2A61**	**Forensic Ballistic Practical**	1. Demonstrate the collection and analysis of gunshot residue from a firearm and the shooter 2. Master the technique of comparison of the bullet and cartridge case. 3. Perform the collection of bullets, cartridge case and test bullet for examination
DSCC	**FSC204A62**	**Forensic Toxicology**	1. Describe the routes of exposure, absorption, metabolism and excretion of poisons. 2. Appraise the techniques of extraction and analysis of poisons 3. Categorize poisons used in accidental, suicidal and homicidal poisoning 4. Compare the characteristics of narcotics, stimulants, depressants and hallucinogens 5. Illustrate the process of collection, preservation and analysis of narcotics, drugs and psychotropic substances
DSCL	**FSC2L2A62**	**Forensic Toxicology Practical**	1. Demonstrate thin layer chromatography to separate and identify drugs of abuse 2. Adopt screening and spot tests to identify pesticides, metallic and organic poisons. 3. Prepare iodoform for the analysis of alcohol
DSE	**FSCE04A61**	**Forensic Serology**	1. Demonstrate the collection of blood, saliva, sweat, milk and urineat the scene of crime 2. Describe the significance of blood, saliva, sweat, milk and urine in forensic science 3. Appraise the morphology, collection and evaluation of semen samples 4. Explain the significance of cellular antigens, extracellular proteins, intracellular enzymes and genetic markers in forensic science 5. Analyse blood stain pattern and reconstruct a crime scene
DSEL	**FSCEL2A61**	**Forensic Serology Practical**	1. Execute Benzidine, Kastle-Meyer and Teichman-Takayama tests to analyse blood samples 2. Demonstrate the set up and working of cross over electrophoresis 3. Formulate reports based on blood spatter analysis
DSEP	**FSCEP6A61**	**Project/ Dissertation**	1. Design an experiment to investigate a problem 2. Adopt methods to analyse the experimental parameters 3. Interpret the results of the experiment 4. Prepare a report