



AAER's

# Asian College of Science and Commerce

Affiliated to SPPU and Approved by Govt of Maharashtra Accredited by NAAC with B+ Grade



## Course Outcomes

The examination format consists of continuous assessment, which accounts for 30 marks for internal evaluation and 70 marks for external evaluation.

Class : F.Y.B.Sc(Cyber And Digital Science) (Semester-I)

Sr. No.	Course Name	Course Outcomes
1.	Python Programming	Able to use python programming elements to solve and debug simple logical problems.
		Experiment with the various control statements in Python.( Ability to code with the various control statements in Python)
		Develop Python programs using functions and strings.
		Develop python programs to implement various file operations and exception handling.
2	Basic Mathematical Techniques	Express mathematical properties via the formal language of propositional logic.
		Acquire ability to describe computer programs in a formal mathematical manner.
		Apply basic counting techniques to solve combinatorial problems;
		Apply variety of methods for explaining, summarizing and presenting data and interpreting results clearly.
		Apply concepts of graphs and trees to tackle real situations such as connectivity and constraint satisfaction, e.g., scheduling.
3	Basic Statistical Techniques for Computer Science	To compute and interpret various summary statistics
		To compute the correlation coefficient and regression coefficients and interpret them.
		To interpret the nature of different types of the probability distributions.
		To use probability distributions for understanding the nature of a given data.
		To statistically test various hypotheses and make decisions.
4	Lab Course on Introduction to Computers and Problem-Solving Course	Able to understand and apply the steps for installing Windows and Linux Operating Systems.
		Basic Understanding of DOS and Networking Commands.
		Able to connect network devices with proper settings.
5	Lab Course on Python	Develop and implement programs by making use of built-in data structures.

	Programming	Design and implement programs to solve real-world problems.
		Able to handle File and its related operations.
		Develop and implement programs by making use of built-in data structures.
6	Lab Course on Basic Mathematical Techniques	Able to develop foundational mathematical concepts.
		Able to understand different algorithms.
		Able to understand Graph Theory.
		To formulate problems precisely and solve the problems.
		To test various hypotheses of significance.
7	Lab Course on Basic Statistical Techniques for Computer Science	Ability to understand the basic concepts of probability.
		Able to understand the concept of linear and Non-linear Regression.
		To introduce to the students some of the probability distributions, their shapes, properties, and applications in real life.



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**Class : F.Y.B.Sc(Cyber And Digital Science) (Semester-II)**

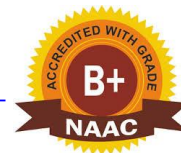
Sr. No.	Course Name	Course Outcomes
1.	Fundamentals of Cyber Security Management	Evaluate fundamental cyber security concepts, theories, and strategies as they apply to real world case studies.
		Explain technical and non-technical security solutions on different types of cyber systems.
		Assess risks, vulnerabilities, and threats to sample cyber systems.
		Identify attributes associated with cyber security professionals.
2	Fundamentals of Digital Communication Systems	To solve problems on Number systems and their representation
		To familiarize with logic gates and applications in combinational and sequential circuits
		To identify the importance of different blocks in electronic communication systems
		To comprehend the functional units and components of digital computer
3	Computer Networks	Understand the concept of OSI Reference Model and TCP/IP.
		To know the components of the Network.
		Understand top down approach of data communication from one user to another user.
		To detect the IP address and route.
4	Programming in C	Devise computational strategies for developing applications.
		Develop applications (Simple to Complex) using C programming language.



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Class : S.Y.B.Sc(Cyber And Digital Science) (Semester-III)

Sr. No.	Course Name	Course Outcomes
1.	Basics of Ethical Hacking	Perform assessment of network, web and system for weaknesses and penetrate if needed
		Draft detailed report which includes vulnerabilities, threats, risks and it's impact
		Implement industry standard security protocols to minimize cyber attacks
		Clearly understand and concur the consequences of cyber attacks
2	Database Management Systems	Compare and contrast database models.
		Write standard SQL queries.
		Understand the concepts and techniques of transaction processing, concurrency control and recovery.
		Understand the emerging trends and applications of database.
3	Data Structure using Python	Use well-organized data structures in solving various problems.
		Differentiated the usage of various structures in the problem solution.
		Implement the algorithms to solved problems using appropriate data structures.
4	Lab on CDS-231	Perform internal and external vulnerability analysis on web application and network.
		Comprehend the hackers mindset while conducting reconnaissance and system hacking.
		Implement industry standard security protocols to prevent cyber-attacks.
		Carry-out the same tactics, techniques and procedures as actual hackers.
5	Lab on CDS-232	Design and implement the database schema for a general problem domain.
		Normalize the database.
		Populate and query a database using SQLDDL / DML commands.
		Programming PL/SQL including stored procedures,stored functions, cursors, packages.
6	Lab on CDS-233	Correctly implement the right data structure for a given problem.
		Apply or create a suitable algorithm to solve a particular problem



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Class : S.Y.BSC(Cyber And Digital Science) (Semester-IIIIV)

Sr. No.	Course Name	Course Outcomes
1.	Principles of Operating Systems	Learn scheduling algorithms and synchronization.
		Handle Deadlock handling methods and Demand Paging.
2	Web and Mobile Application	Design the user interface.
		Develop secure web applications.
		Use cryptographic functions in mobile application development using Kotlin.
3	Network Security and Cryptography	Understand cryptographic algorithms.
		Design secure applications.
		Develop attitude to apply appropriate encryption technique for the problem
4	Lab Course on CDS-241	Install Linux distribution.
		Install security tools on operating systems
		Implement algorithm from operating systems concepts.
5	Lab on CDS-242	Code well designed web applications with validations using JavaScript.
		Develop secure mobile applications using cryptographic functions.
6	Lab Course on CDS-243	Implement cryptographic algorithms.
		Design secure applications.
		Develop attitude to apply appropriate encryption technique for the problem.



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Class : T.Y.B.Sc(Cyber and Digital Science) (Semester-V)

Sr. No.	Course Name	Course Outcomes
1	Digital Forensics-1	Describe Forensic science and Digital Forensic concepts
		Determine various digital forensic Operandi and motive behind cyber attacks
		Interpret the cyber pieces of evidence, Digital forensic process model and their legal perspective.
		Demonstrate various forensic tools to investigate the cybercrime and to identify the digital pieces of evidence
		Analyze the digital evidence used to commit cyber offences.
2	Cyber Threat Intelligence	Detecting and Responding to Advanced Cyber Attacks
		To defend against the cyber-attacks.
		To understand to use appropriate technique for the cyber-attacks.
3	Information Security Policy and Audit	Students will be able to describe fundamental concepts of information security and systems auditing.
		Analyze the latest trend of computer security threats
		Identify security weaknesses in information systems and find appropriate solution for security mechanism
		Explain the security controls in the aspects of physical, logical and Operational security control
		Critically evaluate the security of information systems and audit
4	Lab on CDS-351	Perform basic digital forensics.
		Demonstrate use of digital forensics tools.
		Guide a digital forensics exercise.
		Recognize the state of the practice and the gaps in technology, policy, and legal issues
5	Lab on CDS-352	Detecting and Responding to Advanced Cyber Attacks
		To defend against the cyber-attacks.
		To understand to use appropriate technique for the cyber-attacks.
6	Lab on CDS-353	Solve Case studies related to Information Security and Audit
		Analyze Security controls

		Apply cryptographic technologies
		Perform basic level Information Security Audit
7	Mobile Forensics	Understand the cellular network and mobile device hardware
		Learn mobile forensics process in detail
		Understand mobile devices and its forensics
		Understand and use mobile forensics tools
8	Cloud Security	Learn the fundamentals of cloud computing and its models
		Learn data, storage and network security mechanism in cloud environment
9	Lab on CDS-357A (Mobile Forensic)	Find the 5G technologies affects in mobile forensics
		Understand to explain the technical terms to a non-technical person
		Use the mobile forensics tools and try various usages of them in real life
10	Lab course on Cloud Security (CS-357B)	Setup own Amazon EC2 instances on cloud
		Setup infrastructure and data security
		Apply Identity and Access Management (IAM) policies on cloud instances



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Class : T.Y.B.Sc(Cyber And Digital Science) (Semester-VI)

Sr. No.	Course Name	Course Outcomes
1	Digital Forensics-2	Explain how to apply digital forensics methods to investigating email and social media communications
		Trace, recover, and analyze e-mail messages by using forensics tools
		Describe procedures for acquiring data from mobile devices
		Retrieve information from mobile devices
		To examine and recover graphics files
		Explore procedures for virtual machine forensics, live acquisitions, and network forensics.
2	Cyber Law (Information Security Policies and Strategies)	Have a good understanding of Cyber Security and the Tools
		Develop the Understanding of, how to make secure system planning,
		Make Learner to develop standard and policies
3	Web Science	Develop a simple web application
		Access and develop web services
		Provide security to the web application through authorization and authentication.
4	Lab on CDS-361	Perform basic digital forensics.
		Demonstrate use of digital forensics tools.
		Guide a digital forensics exercise.
5	Lab on CDS-362	Solve Case studies related to Information Security Policies and Strategies
		Study if Indian IT Acts.
		Study of Security standard.
		Perform basic level Information Security policies.
6	Lab on CDS-363	Develop the simple Web applications
		Perform SQL injection attack analysis on web application and database.
		Implement basic web services.
7	Malware Analysis	Classify the malwares and analyze them.
		Use the tools for analysis of any type of malware.
		Write own tools/programs for analyzing the malware.
8	Fin tech- Cybersecurity	Understand the financial threats and its security



		Monitor the threats and try to find the FinTech Solutions for Small Businesses
9	Lab on CDS-367A	Classify the malwares and analyze them.
		Use the tools for analysis of any type of malware.
		Write own tools/programs for analyzing the malware.
7	Lab on CDS-367B (Fintech security)	Understand the block chain for payment service.
		Understand cyber security and risk management.