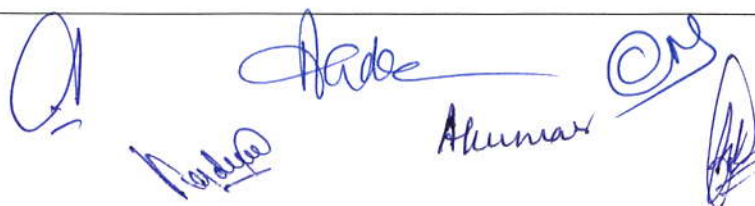**Sri Sathya Sai College for Women, Bhopal**
(An Autonomous College Affiliated to Barkatullah University Bhopal)
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus (Annual Pattern)
As recommended by Central Board of Studies and approved by the Governor of M. P.
wef 2023-2024
(Session 2023-24)
(NEP-2020)

Class	B.C.A.
Year	III Year
Subject	Computer Application
Course Title	Cyber Security
Course Type	Elective
Credit Value	6
Max. Mark	30+70 (Minimum Marks 35)

Course Outcome: On successful completion of this course, the students will be able to:

1. Identify the key components of cyber security network architecture.
2. Employ, design and implement appropriate security technologies and policies to protect computers and digital information.
3. Analyze threats and risks within context of the cyber security architecture.
4. Apply cyber security architecture principles.
5. Gain familiarity with prevalent network and distributed system attacks.

Particular

Unit-I	Cyber Security: Introduction, Need for security. Basics of Cryptography: Plain text and Cipher Text, Substitution techniques, Caesar Cipher, Mono-alphabetic Cipher, Polygram, Polyalphabetic Substitution, Playfair, Hill Cipher, Transposition Cipher.
Unit-II	Encryption and Decryption, Symmetric Key Algorithms and AES: Brief history of Asymmetric Key Cryptography, Overview of Asymmetric Key Cryptography, RSA algorithm, Overview of Symmetric key Cryptography, Data Encryption Standard (DES)
Unit-III	Network Security, Types of Attacks, Firewalls and Virtual Private Networks: Brief Introduction to TCP/IP, Firewalls, Virtual Private Networks (VPN), Secure Socket Layer (SSL), Transport Layer Security (TLS), Secure Hyper Text Transfer Protocol (SHTTP), Time Stamping Protocol (TSP) Secure Electronic Transaction (SET) Secure Sockets Layer (SSL), E-mail Security
Unit-IV	Introduction to Information systems, Types of Information systems, Development of Information Systems, Need for Information security, Threats to Information systems, Information Assurance, Cyber Security and Security Risk Analysis
Unit-V	Security Policies, Why policies should be developed, WWW policies, Email Security policies, Policy Review Process-Corporate Policies-Sample Security Policies, Publishing and Notification Requirement of the policies, Information Security Standards - ISO, IT Act, Copyright Act, Patent Law, IPR

Suggested Readings:

1. Bernard Menezes. "Network Security and Cryptography", CEGAGE Learning, ISBN-10:81-315-1349-1, ISBN-13: 978-81-315-1349-1, 2014.
2. Charles Pfleeger, "Security in Computing", Prentice Hall, 4th Edition, ISBN-10:0132390779, ISBN-13: 978-01323907744, 2006.
3. Ulysess Black, "Internet Security Protocols: Protecting IP Traffic", Prentice Hall PTR: 1st edition. ISBN-10: 0130142492, ISBN-13:978-0130142498, 2000.
4. William Stallings, "Cryptography and Network Security ", Pearson Education, 6th Edition, ISBN 10: 0133354695, 2013.
5. Jonathan Rosenoer,"Cyber Law: The Law of the Internet". Springer –Verlag, 1997.
6. Mark F Grady, Fransesco Parisi, "The Law and Economics of Cyber Security", Cambridge University Press, 2006.

Suggestive digital platforms/ web links:

1. https://onlinecourses.swayam2.ac.in/nou19_cs08/preview
2. https://onlinecourses.swayam2.ac.in/cec20_cs15/preview
3. https://nptel.ac.in/courses/106106129
4. https://nptel.ac.in/courses/106105031
5. https://nptel.ac.in/courses/106106199

Suggested equivalent online courses:
1. https://www.simplilearn.com/cyber-security/certification
2. https://study.torontosom.ca/cybersecurity/diploma
3. https://aws.amazon.com/securitycourses/by_aws _experts
4. https://www.udemy.com/topic/cyber-security

Scheme of Marks:

Maximum Marks: 100		
Continuous Comprehensive Evaluation (CCE): 30 marks, Term End Exam: Theory 70 marks		
Internal Assessment : Continuous Comprehensive Evaluation (CCE):	Class Test Assignments/ Presentation	**30**
External Assessment: University Exam Section Time:03.00 Hours	**Section (A)** Very Short questions **Section (B)** Short questions **Section (C)** Long questions	**70**
		Total 100