A.P. State Council of Higher Education
Semester-wise Revised Syllabus under CBCS, 2019-20
Four year B.A./B.Com.(Hons) (Hons) Semester –V (from 2022-23)
Course Code: Max Marks: 100
Domain Subject: **Computer Applications for Arts/Commerce**
IV Year B. Sc./B.Com (Hons) – Semester – V
Course-**7B**: **CYBER SECURITY AND MALWARE ANALYSIS**
(Skill Enhancement Course (Elective), 4 credits)

COURSE OUTCOMES:
Upon successful completion of this course, students should have the knowledge and skills to

1. Understand the computer networks, networking tools and cyber security
2. Learn about NIST Cyber Security Framework
3. Understand the OWASP Vulnerabilities
4. Implement various Malware analysis tools
5. Understand about Information Technology act 2000

Syllabus: (Total hours: 75 including Theory, Practical, Training, Unit tests etc.)
UNIT 1: Introduction to Networks & cyber security   **14hrs**

- Computer Network Basics
- Computer network types
- OSI Reference model
- TCP/IP Protocol suite
- Difference between OSI and TCP/IP
- What is cyber, cyber-crime and cyber-security
- All Layer wise attacks
- Networking devices: router, bridge, switch, server, firewall
- How to configure: router
- How to create LAN

UNIT 2: NIST Cyber security framework   **12hrs**

- Introduction to the components of the framework
- Cyber security Framework Tiers
- What is NIST Cyber security framework
- Features of NIST Cyber security framework
- Functions of NIST Cyber security framework
- Turn the NIST Cyber security Framework into Reality/ implementing the framework

UNIT 3: OWASP   12hrs

- What is OWASP?
- OWASP Top 10 Vulnerabilities
  - ❖ Injection
  - ❖ Broken Authentication
  - ❖ Sensitive Data Exposure
  - ❖ XML External Entities (XXE)
  - ❖ Broken Access Control
  - ❖ Security Misconfiguration
  - ❖ Cross-Site Scripting (XSS)
  - ❖ Insecure Deserialization
  - ❖ Using Components with Known Vulnerabilities
  - ❖ Insufficient Logging and Monitoring
- Web application firewall

UNIT 4: MALWARE ANALYSIS   12hrs

- What is malware
- Types of malware
  - ❖ Key loggers
  - ❖ Trojans
  - ❖ Ran some ware
  - ❖ Rootkits
- Antivirus
- Firewalls
- Malware analysis
  - ❖ VM ware
  - ❖ How to use sandbox
  - ❖ Process explorer
  - ❖ Process monitor

UNIT 5: CYBER SECURITY: Legal Perspectives   10hrs

- Cybercrime and the legal landscape around the world
- Indian IT ACT 2000 --Cybercrime and Punishments
- Challenges to Indian law and cybercrime scenario in India