

Systems & Network Programming (SNP):

Syllabus:

- Basic Linux commands & system calls
- strace command in Linux
- Basic Python programming
- Socket programming using Python
- Socket programming using C

Online Quiz:

- Basic Linux commands
- Socket programming questions

Online VIVA (2 group members):

- Write and submit a report in IEEE format about any vulnerability
- Exploit the vulnerability live in the VIVA

Database Management Systems For Security (DMSS):

Syllabus:

- SQL commands on Microsoft SQL Server (https://www.youtube.com/watch?v=-EPM0aV7h_Q)
- T-SQL
 - Schema Refinement
<https://www.youtube.com/playlist?list=PLdo5W4Nhv31b33kF46f9aFjoJP0kdlsRc>
- Indexes
- Query Processing
- Transaction Processing
- Concurrency Control
- Database Security

Assignment (4 group members):

- Build an online auction system using SQL only

Introduction To Cyber Security (ICS):

Final Exam Paper:

Question 1:

- Introduction to CS
- Security Controls and Risk Management
- Data Loss and Hackers

Question 2:

- Cryptography I
- Cryptography II - Hash Functions and Key Management
- Cryptography III - Symmetric-Key Algorithms
- Asymmetric Encryption Algorithms and PKI

Question 3:

- User Authentication
- Access Control

Question 4:

- Malicious Software
- Legal and Ethical Aspects of Information Security

Individual Assignment:

- Create a 10min video of yourself talking about any CS topic (Quantum Cryptography, Zero-trust Networks, Security using AI, etc..)

Secure Operating Systems (SOS):

Individual Assignment:

- Build a basic Python program