**CSE2203 COURSE PLAN (2018/2019: SEMESTER 11)**

By the end of this course students will be able to:

1. Identify and describe computer security risks and attacks
2. Develop and communicate security policies
3. Explain Cryptography, Encryption and Authentication mechanisms
4. Identify networks security issues and describe and implement security mechanism to protect computer networks
5. Identify elements of application security and describe mechanisms used to create secure applications
6. Describe cybersecurity and identify means to mitigate again cyberattacks

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| **WEEK** | **DATE** | **LECTURE TOPICS (2 HRS)** | **LAB TOPICS (2 HRS)** | **NOTES** |
| 1 | JAN 28 – FEB 2nd | **Welcome and Introduction**  **Security Basics**  What is security – Nature of the security problem.  Type of Attacks / Countermeasures  Importance of Security Policies / Risk Analysis | NO LABS | This class was cancelled. |
| 2 | FEB 4TH – 9TH, 2019 | **Cryptography**  General Cryptography Concepts  Overview of Cryptosystems  Symmetric vs Asymmetric  Block vs Stream | NO LABS | This week’s class was disrupted due to Bomb Scare. |
| 3 | FEB 11TH – 16TH, 2019 | Authentication, Encryption (DES), RSA Algorithm  Hash Systems and Hashing Algorithms | NO LABS | Course Intro, Lectures 1 & 2 completed. |
| 4 | FEB 18TH – 23RD, 2019 | Integrity – Digital Certificates  Message Digests, Key Distribution Centers | Intro to Classical Ciphers & Symmetric Cryptography LABS | NO LECTURES THIS WEEK – DIPLOHACK |
| 5 | FEB 25TH – MAR 2ND | **Network and Internet Security**  Type of attacks:  Labs | Introduction to Computer Networks – OSI Layer  IP and TCP Protocols  TCP Handshake – Wire shark? | UGCC can compliment in any way? |
| 6 | MAR 4TH – 9TH | Internet Commerce, SSL, IPSec  Firewalls and Packet Filters, Access Lists  **ASSIGNMENT 1 DUE March 8th** | **ASSIGNMENT 1 PRESENTATIONS DURING LAB TIMES** |  |
| 7 | MAR 11TH – 16TH | Virtual Private Networks (VPN)  Intrusion Detection Mechanisms  Labs  **Test #1** | 2 | 2 |
| **SEMESTER BREAK (MAR 18TH – 23RD)** | | | | |
| 9 | MAR 25TH – 30TH | **Wireless Security**  Wireless Networks, VOIP Security and SIP  Labs | 2 | 2 |
| 10 | APR 1ST – 6TH | Type of wireless attacks: WEP/WPA attacks, war chalking, war driving, Rogue Access Points, Jamming Interference. | 2 |  |
| 11 | APR 8TH – 13TH | **System Security**  General principles, introduction to systems security  Test # 2  Labs | 1  1 | 2 |
| 12 | APR 15TH – 20TH | Access control, ACLs vs. capabilities, access control models | 2 | 2 |
| 13 | APR 22ND – 27TH | **Application Security**  Input/Output Validation, Exception Handling, Sign-On, Access Control, Library Linking, Configuration Management, Session Handling and Program Execution  Labs | 2 | 2 |
| 14 | APR 29TH – MAY 4TH | **Cyber Crime & Cybersecurity**  Types of Attacks  Protection Mechanisms  Cybersecurity Policies and Management  Labs | 2 | 2 |
| 15 | Revision | MAY 4TH IS LAST DAY OF CLASSES |  |  |
| 16 | Final Examination |  |  |  |
| **Total** | **52 Hours of Contact** |  | **26** | **26** |

**Method of Teaching:**

Lectures 2 x 13 = 26 hrs.

Laboratories/ Tutorials 2 x 13 = 26 hrs.

**Method of Assessment:**

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**Coursework (40%)**

Tests (20%)

Assignments (20%)

**Final Examination (60%)**

**Required Reading(s)**

Pfleeger, C. P., & Pfleeger, S. L. (2002). *Security in computing*. Prentice Hall Professional Technical Reference.

Stallings, W. (2006). *Cryptography and Network Security, 4/E*. Pearson Education India.

**Recommended Reading(s)**

Stallings, W. (2007). *Network security essentials: applications and standards*. Pearson Education India.