1. Course Number and Course Title:

COE 555 – Cyber Security

2. Credits Hours:

3 - 0 - 3

3. Prerequisites and/or Co-Requisites:

Prerequisite: Approval of the CSE Head of Department Co-requisites: None Competencies: Undergraduate course in networking and computer security

4. Name and Contact Information of Instructor:

Dr. Fadi A. Aloul

5. Course Description (Catalog Description):

Covers advanced topics in cyber security, including: information security and risk management, disaster recovery planning, operations security, access control, applied cryptography and public key infrastructure, network security, and laws and regulations in computer security.

6. Textbook and other Supplemental Material:

Textbook:

• Wm. Conklin et al, *Principles of Computer Security*, 5th edition, McGraw-Hill, 2018.

Other supplemental material:

- Selected articles and journal papers.
- R. Panko, *Corporate Computer and Network Security*, 2nd edition, Prentice Hall, 2009.
- S. Harris, CISSP All-in-One Exam Guide, 7th edition, McGraw-Hill, 2016.

7. Learning Outcomes:

Upon completion of the course, students will be able to:

- 1. Implement risk, change, and privilege management measures
- 2. Enable disaster recovery and business continuity
- 3. Implement operations security
- 4. Employ secure access control measures
- 5. Use cryptography and public key infrastructure to protect data

- 6. Describe the threats and countermeasures of network attacks
- 7. Demonstrate an understanding of the laws and regulations in computer security

8. Teaching and Learning Methodologies:

Methods include lectures; problem and project based learning methods (project assignments, quizzes, case studies, and team research project) and class discussions. Guests will be invited for short seminars and workshops to illustrate the practical relevance of the course.

9. Course Topics and Schedule:

Торіс	Weeks
Principles of Computer Security	Week 1
Access Control	Week 2
Physical Security	Week 3
Applied Cryptography	Week 4
PKI	Week 5
Telecommunications and Network Security - 1	Week 6
Telecommunications and Network Security - 2	Week 7
Disaster Recovery Planning – 1	Week 8
Disaster Recovery Planning – 2	Week 9
Midterm	Week 10
Risk Management – 1	Week 11
Risk Management – 2	Week 12
Operations Security – 1	Week 13
Laws and Regulations in Computer Security – 1	Week 14
Research Project Presentations	Week 15
Review and Evaluation	Week 16