Addis Ababa University
College of Natural and Computational Sciences
School of Information Science

Course Title	**Information System Security**
Module Title	**Computer Networks, Administration and Security**
Module Code	**INSY-M3071** Course Code**: INSY3073**
CP/ECTS	**5**
Study Hours	Lecture: **32** Laboratory: **16** Tutorial: **0** Home Study: **87**
Instructor's Information	**Name**: Tsegaye Berhanu
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	Office Location: Eshetu Chole Building, 3rd floor, Room #319
	Consultation Hours: anytime
Course Information	Academic Year: 2018/2019
	Semester: II
	Course Schedule:
	Class Room: 312
	Prerequisite(s):
	Mode of Delivery: Parallel
Course Description	The course will cover: • historical background of security, • fundamentals of Information Systems security, privacy, • the importance of security for Information Systems, • web and internet security, • attack types and protection schemes, • public and private key encryption techniques, • security at different layers, • malicious system security threats (viruses, worms, Trojan horses), • web security. • Internet security protocols and applications such as SSL/TLS, IPSEC, Kerberos, PGP, S/MIME, SET, and others.
Learning Outcomes	On the successful completion of the course the students will be able to: • Understand basic issues, concepts, principles, and mechanisms in information security • Security goals and threats to networking infrastructure and applications. • Apply cryptography security technique, systems and Network security applications. • acquire an understanding of network security and its changing character • understand how network security is conceptualized and carried out • analyze both early and contemporary threats to network security • articulate informed opinion about issues related to network security • identify and investigate threats to network security • appreciate the challenges of network security

Course Content		
Topic	**Duration (Week)**	**Reading list**

Chapter 1: Introduction to Information Security
    1.1. Definition of Information Systems Security
    1.2. Critical concepts of Information Security
    1.3. History of computer security and Information Security
    1.4. Security/Privacy Vulnerabilities
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Chapter 2: Fundamentals of IS Security
    2.1. IS Security Fundamentals
    2.2. Components of Information Systems security
    2.3. Principles of Information Systems Security
    2.4. Introduction to IS Security Policy
    2.5. Plan, Design and Implement IS Security
	10	

Chapter 3: Attack Types and Protection Schemes
    3.1. Categories of Attack Types and Security threats
    3.2. Vulnerabilities of Information Systems
    3.3. Malicious Security Threats
        3.3.1. viruses
        3.3.2. worms
        3.3.3. Trojan horses
        3.3.4. Spyware
    3.4. Categories of Security controls
    3.5. Social Engineering
	11	

Chapter 4: Security Techniques
    4.1. Cryptography
        4.1.1. Introduction
        4.1.2. Definitions and Terms
        4.1.3. Private Key cryptosystems
        4.1.4. Public key cryptosystems
        4.1.5. Data Encryption Standards(DES) and Advanced Encryption Standards(AES)
        4.1.6. Digital Signature
    4.2. Access Control
    4.3. Firewalls
    4.4. Intrusion Detection Systems (IDS)
    4.5. Authentication
	12	

Chapter 5: Security at Different Layers
    5.1. Physical Security
    5.2. Software Security
    5.3. Network Security
    5.4. Web Security
    5.5. Advanced Security Issues
	13-15	

Teaching Strategy	The course will be delivered in the form of lectures, demonstration, student presentations, group discussions, and individual and group project works.
Assessment Criteria	The evaluation shall be based on both formative and summative assessment which include:

Assessment Forms	% of credit allotted
Lecture (100%)	
• Participation and Attendance	10
• Quizzes and Assignments	25
• Test	25
• Final examination	40
Practice (100%)	
• Participation and Attendance	10
• Lab Assignments	20
• Lab Exam	40
• Project	30

Role of Instructor(s)	Delivers lectures, prepares reading assignments and topics for group discussion, prepares projects by discussion with student, gives consultation and advises students on project works and assignments, prepares and evaluates quiz, assignment, midterm and final examination.
Role of Students	Attend lectures, lab session and presentation, work in team on group work, participate in group discussion, discusses with the instructor on topics of interest for project work, delivers and presents project work, attend quiz, midterm and final examination.
Required software and/or hardware	
Reference	1. S. Bosworth and M. E. Kabay, Computer Security Handbook (4th ed), Willey Inc., 2002. 2. D. Schweitzer, Incident Response, Computer Forensics Toolkit, Wiley, 2003. 3. S. Garfinkel, G. Spafford and A. Schwartz, Practical Unix and Internet Security (3rd ed.), O'Reilly, 2003. 4. S. A. Thomas, SSL and TLS Essentials: Securing the Web, Wiley, 2000.