

Course Syllabus

Southeast Missouri State University

Department: Industrial and Engineering Technology

Course No.: ET-435/635

Title of Course: Network Security

Revision: New

Course Web URL (<http://cstl-pti.semo.edu/wu/et425>)

Instructor: Dr. Shuju Wu

Office: PB 213L

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I. Catalog Description and Credit Hours of Course:

Topics in security services, threats, and vulnerabilities for networked environments. Principles of cryptography, security protocol design and analysis, node and service authentication, address spoofing, hijacking, SYN floods, sniffing, viruses, intrusion detection, firewalls, and ethical and legal issues. 3 Credit Hours (2 hours lecture and 2 hours Lab)

II. Prerequisite: ET425

III. Objectives of the Course:

1. Explain network security in various networked environments.
2. Explain how security mechanisms work for various networks, including wireless ad hoc networks, and sensor networks.
3. Distinguish difference between security problems in wireless networks and those in wired networks.
4. Develop mechanisms to solve security problems in networked environments.
5. Identify and analyze new security problems in wireless networks.

IV. Expectation of Students:

1. Students are expected read assigned materials.
2. Students are expected to complete all assignments. Assignments will ONLY be accepted on the due dates provided, unless previous arrangements are made or student provides a written medical doctor's excuse.
3. Students are expected to participate in class and group discussions
4. Student work will be completed in accordance with Code of Student Conduct (<http://www6.semo.edu/judaffairs/code.html>)
5. In a professional environment, work areas are kept clean. In keeping with a professional attitude towards fellow students, always clean your area before leaving.
6. All laboratory work must be completed during the regularly scheduled lab time.

V. Course content:

- | | |
|---|---------|
| 1. Introduction of security issues
(Concepts, threats, vulnerabilities
and security breaches). | 1 Week |
| 2. Network security Objectives,
architectures, security services | 2 Weeks |
| 3. Access control models and mechanisms.
Access Matrix, ACL, Non-interference
and Role based models | 2 Weeks |
| 4. Cryptographic techniques. Secret key and
public key cryptosystems | 2 weeks |
| 5. Authentication (Mechanisms, passwords,
protocols, smart cards, biometrics,
digital signatures, Kerberos) | 3 weeks |
| 6. Internet security protocols, IP authentication header,
IP encapsulating security protocol,
transport layer and network layer security. | 3 Weeks |
| 7. Viruses, intrusion detection and firewalls | 2 Weeks |
| 8. Final Exam | |

VI. Textbook and Other Required Materials or Equipment:

Network Security: Private Communication in Public World. Charlie Kaufman,
Radia Perlman, Mike Speciner, second Edition (2/e). 2003.

VII. Student Evaluation:

Grading Policy:

Undergraduate

- | | | | |
|-------------------------|------|------------|---|
| • Homework: | 20 % | 90-100 | A |
| • Labs: | 15 % | 80-89.9999 | B |
| • Class participation:* | 5% | 70-79.9999 | C |
| • Mid-term Exam: | 30 % | 60-69.9999 | D |
| • Final Exam : | 30% | < 60 | F |

Graduate

• Homework:	20 %	90-100	A
• Labs:	15 %	80-89.9999	B
• Class participation:*	5%	70-79.9999	C
• Mid-term Exam:	25 %	60-69.9999	D
• Final Exam :	25%	< 60	F
• Graduate Project	10%		

Graduate students will be required to complete a project relating to advanced topics in network security and make a student presentation.

The weight of evaluation criteria may vary at the discretion of the instructor and will be indicated at the beginning of each course.

*: Participation to class discussions, taking labs, homework, and exams on the assigned time slots. The instructor reserves the right, acting within the policies and procedures of the university, to make changes in course content or instructional techniques without notice or obligation. No late assignments will be accepted. “**Emergencies**” require that YOU contact the instructor ASAP. Request for a late submission after the due time will not be granted.

VIII. Lab Rules and Safety Agreement:

Students must read, sign and follow the Laboratory Rules and Safety Agreement provided by the instructor.

IX. Academic Honesty:

Academic dishonesty is an offense against Southeast Missouri State University. A student who has committed an act of dishonesty has failed to meet a basic requirement of satisfactory academic performance. This academic dishonesty is not only a basis for disciplinary action, but is also relevant to the evaluation of the student’s level of performance.

Refer to: <http://www6.semo.edu/judaffairs/code.html>

X. Disabilities Statement:

If you have special needs addressed by the Americans with Disabilities Act and need special help, notify the university Learning Enrichment Center (573-651-2273) and your course instructor immediately if haven’t done so. Reasonable efforts will be made to accommodate your special needs.