**Course Syllabus**

**Course #**: CIT 2010 **Course Name**: Operations & Management

**Division:** Business Technologies

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**Class Days:** Tuesday/Thursday **Class Time:** As Scheduled
**Location:** Classroom: B 304 Laboratory: B 304
**Credit Hours:** 3 **Contact Hours:** 4 **Lab Hours:** 2 **Lecture Hours:** 2

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**Instructor:** Jim Swint **Office Location:** B 302
**Phone:** 419.559.2314 **Email Address:** jswint@terra.edu
**Office Hours:** As Posted
**Division Office/Location:** B 104 **Division Fax:** 419-334-9414
**Full-time Contact Person:** Jim Swint **Phone(s):**

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**Course Description:**

This course has two main topics. The first topic is Security in a networking environment and the second topic is to introduce the student to a Unix/Linux type environment. The student will learn about the technologies used and principles involved in creating a secure computer networking environment. Hands-on activities will include Unix/Linux functions and commands. These topics will introduce the student to command-line activities including account creation and management, shell command line commands, file and directory properties and permissions, scripting, and basic command line management skills. (Fall)

**Prerequisite(s):**

CIT 1400--Networking 1

**Corequisite(s):**

None

**Entry Level Skills and Knowledge:**

Knowledge of Microcomputers Hardware and Operating System Software
Basic Networking Skills
Knowledge of Microcomputers Hardware and Operating System Software
Knowledge of the Internet-particularly the WWW
College reading comprehension (ENG 1050)
Algebraic math skills (MTH 1310)
Binary & Hexadecimal numbering system (MTH 1410)

**Required Texts, Supplies and Equipment:**

SECURITY+ GUIDE TO NETWORK SECURITY FUNDAMENTALS, SECOND EDITION
Published by Thompson/Course Technology. ISBN 0-61921566-6

THE LINUX BOOK by Elboth. Published by Prentice Hall.

**Grading:**

92 – 100 = A
84 - 91 = B
74 - 83 = C
65 - 73 = D
0 - 64 = F

**Learning Outcomes:**

General Education

- Communicate effectively.
- Evaluate arguments in a logical fashion.

Technical Education

Systems & Networking Support

- Identify, compare, and use basic data communication terms, basic tools of data. communications, and elements necessary for connectivity between networks and computer systems.
- Effectively configure and troubleshoot computer/networking hardware and software.
- Configure, implement, and troubleshoot a network.
- Navigate and/or configure multiple operating system platforms.

**Learning Outcomes: (Continued)**

Course Specific

Security

- Identify the challenges facing information security.
- Define information security.
- List & define information security terms.
- Describe information security careers.
- Describe basic attacks, identity attacks, DoS attacks, and malware.
- Describe security principles and personnel.
- Learn to control access to computer systems.
- Hardening operating systems, applications, and hardware.
- Hardening the network.
- Email systems, www vulnerabilities, & instant messaging.
- Hardening the wireless network.
- Securing remote access.
- Using hashing algorithms.
- Understanding cryptography.
- Define public key infrastructure (PKI).
- Social engineering.
- Securing the environment.
- Disaster recovery.

Linux

- Account creation.
- Login/logout process.
- Directory structure.
- Introduction to Unix/Linux utilities.
- Text editing using vi.
- File system.
- Shells and Shell scripting.
- Printing.
- I/O redirection.
- Other utilities and commands to include but not limited to:

| | | | | |
|---|---|---|---|---|
| cp | mv | lpr | grep | head |
| sort | man | apropos | file | date |
| which | whereis | who | finger | w |
| pine | ls | cal | cd | mkdir |
| chmod | chown | du | echo | find |
| file | ftp | gcc (C+)grep | kill | |
| rmdir | mv | ps | rm | sed |
| sort | more | umask | write | ln |

**Assessment of Student Learning:**

This course may include a project that is one of several that will be used by faculty to assess student academic performance in the program. A panel of faculty will review all (projects or whatever assessment activity you are doing), then assess and summarize the academic performance of students at this point in the program. The results of this assessment will be shared among the department faculty, used to identify needed changes or improvements, and submitted to the Student Academic Assessment Committee as part of the College's overall student academic assessment effort.

Assessment Project and Measurement in course (if any):

None for this class.

**Plan of Work:**

| Class | Topic | Security | Linux |
|---|---|---|---|
| 1 (T) | Security Overview | Ch 1 | |
| 2 (R) | Security Overview | Ch 1 | |
| 3 (T) | Attackers & Their Attacks | Ch 2 | |
| 4 (R) | Attackers & Their Attacks | Ch 2 | |
| 5 (T) | Security Basics | Ch 3 | |
| 6 (R) | Security Basics | Ch 3 | |
| **7 (T)** | **Test (Security Ch 1,2,3)**<br>Security Baselines | Ch 4 | |
| 8 (R) | Security Baselines | Ch 4 | |
| 9 (T) | Security Baselines | Ch 4 | |
| 10 (R) | Securing the Network Infrastructure | Ch 5 | |
| 11 (T) | Securing the Network Infrastructure | Ch 5 | |
| 12 (R) | Web Security | Ch 6 | |
| 13 (T) | Web Security | Ch 6 | |
| 14 (R) | Linux Account Creation<br>Intro to Linux | | Ch 1,2 |
| **15 (T)** | **Test (Security 4,5,6)** | | **Ch 3** |
| 16 (R) | Linux | | Ch 4,5,6 |
| 17 (T) | Linux | | Lab |
| 18 (R) | Protecting Communication | Ch 7 | Lab |
| 19 (T) | Protecting Communication | Ch 7 | Lab |
| 20 (R) | Cryptography | Ch 8 | Lab |
| 21 (T) | Cryptography | Ch 8 | Lab |
| **22 (R)** | **Linux Test (1 – 6)** | | **Test** |
| 23 (T) | Keys | Ch 9 | |
| 24 (R) | Keys | Ch 9 | |
| 25 (T) | Linux | | Ch 7,8,12 |
| **26 (R)** | **Test (Security 7,8,9)** | | **Lab** |
| 27 (T) | Linux | | Ch 9 |
| 28 (R) | Linux | | Ch 11 |
| 29 (T) | Linux | | Ch 14,15 |
| 30 (R) | Linux | | Ch 16 |
| **31 (T)** | **FINAL EXAM (Linux only)**<br>**---Comprehensive---** | | **Final Exam** |

**Course Requirements:**

The following elements will be used for calculating final grades for this course:

| | |
|---|---|
| Security Tests & Labs (3 tests) | 45% |
| Linux/Unix Tests (3 including Final) | 45% |
| Instructor Evaluation | 10% |

Instructor evaluation is based upon class participation and **preparedness (includes reading assignments)**, quality of questions, and individualized and group class activities.

Note: Your final grade is an accumulation of points. The percentages listed above are estimates of each component's weight in determining your final grade.

Assignments/Projects:

Security

As assigned by instructor

Unix/Linux:

Labs as assigned.

All labs are to completed (some may require outside class time) and used as review material for lab tests. For the most part, Linux labs are NOT to be turned in for credit.

Course Requirement Policies:

Students are required to take tests with the rest of the class. Any student missing a test must **make up the test in advance** or notify the instructor in advance. It will then be at the instructor's discretion whether a make-up test will be permitted. Should a make-up test be permitted, the student has six (6) calendar days to complete the test. NO STUDENT WILL BE ALLOWED TO MAKE UP TWO (2) TESTS.

General/Miscellaneous:

This syllabus is for student and instructional planning. It will be followed as closely as possible. Any student having a need for special accommodations is encouraged to make his/her needs known to the instructor during the first class of the semester. Cheating or plagiarism may be cause for an individual to be dismissed from the class and/or the institution. See the Student Handbook for additional information regarding college policy.

One word of warning! The Linux portion of the class occurs in the last half of the

semester. Students have a tendency to "slack off" as we approach the end of the term.

General/Miscellaneous: (Continued)

This semester tends to be a bit rigorous. Students have a tendency to play catch-up in other classes and ignore the labs and reading assignments associated with the OPMAN class. The time allotted in this class is for Operations & Management—students are expected to focus on this fact.

## Policies

**Course Withdrawing**: If for any reason you need to withdraw from this course, be certain that you do so according to College procedure. It is your responsibility to know and follow this procedure. If you simply stop coming to class, without officially withdrawing from the course, your grade is an automatic "F." Please follow official College procedure for withdrawing from this or any course.

*College Academic Policies are located in the College Catalog. A copy of the current catalog may be picked up in any of the division offices or admissions. The list of college policies is also available online at https://www.terra.edu/register/Collegecat/policies.asp.*

**Support Services:** The College offers a number of support services to assist in your success in this course and all courses. Among these services are the Writing & Math Center in B105, the Office of Learning Support Services, which coordinates the campus disability services and tutoring programs, the computer labs, and the computers in the atriums.

Any student who feels he/she may need an accommodation based on the documentation of a disability should contact the Office of Learning Support Services privately to discuss his/her specific issues. Please contact the OLSS at (419) 334-8400 X 2208 or visit 100 Roy Klay Hall (Building A) to coordinate reasonable accommodations.

***If you have a documented disability and are receiving academic accommodations through the Office of Learning Support Services, please schedule a meeting with your instructor in a timely manner so that we may discuss how these services will be arranged.***

Tutoring services are available to students beginning the second week of every quarter. Students requesting tutoring services should obtain a tutor request form from the OLSS in 100 Roy Klay Hall (Building A) or online at the Terra website. Please note that instructor verification and acceptance of the Student Learner Agreement is necessary for all tutoring requests. All requests should be submitted to 100 Roy Klay Hall (Building A).