

University of Puerto Rico
 Mayagüez Campus
 College of Engineering
 Department of Electrical and Computer Engineering
 Bachelor of Science in Computer Engineering

Course Syllabus

1. General Information:	
Alpha-numeric codification: ICOM5017 Course Title: System and Network Administration and Security Number of credits: 3 Contact Period: 2 hours of lecture and three hours of laboratory per week Elective in ICOM	
2. Course Description:	
English: This course introduces and provides practical experience in system and network administration and security issues.	
Spanish: Este curso introduce y provee una experiencia practica en la administracion de Sistemas de Redes y Temas de Seguridad.	
3. Pre/Co-requisites and other requirements:	
ICOM 5007 and INEL 4307 or relevant experience	
4. Course Objectives:	
Students will learn how to use the software tools developed for the administration of computer operating systems. In addition, students will learn how to develop countermeasures for security attacks.	
5. Instructional Strategies:	
<input checked="" type="checkbox"/> conference <input checked="" type="checkbox"/> discussion <input type="checkbox"/> computation <input checked="" type="checkbox"/> laboratory <input checked="" type="checkbox"/> seminar with formal presentation <input type="checkbox"/> seminar without formal presentation <input type="checkbox"/> workshop <input type="checkbox"/> art workshop <input type="checkbox"/> practice <input type="checkbox"/> trip <input type="checkbox"/> thesis <input type="checkbox"/> special problems <input type="checkbox"/> tutoring <input type="checkbox"/> research <input type="checkbox"/> other, please specify:	
6. Minimum or Required Resources Available:	
Students will use Departmental computer laboratories to complete course projects.	
7. Course time frame and thematic outline	
Outline	Contact Hours
Introduction to system administration	3
System, user, and file system configuration and backup	6
Installation, event logging and problem investigation	3
Administering network configuration and services	3
User services and maintenance	3
Cryptographic basics and secure socket and other layers	6

Hacking methods, intrusion and virus countermeasures	9
Legal and ethical issues	6
Project presentations	3
Exams and discussions	3
Total hours: (equivalent to contact period)	45

8. Grading System

Quantifiable (letters) Not Quantifiable

9. Evaluation Strategies (Suggested): The faculty member teaching the course will provide the student with the evaluation strategy he/she will be using throughout the semester. This will be done within the first week of classes.

	Quantity	Percent
<input checked="" type="checkbox"/> Exams	2	40%
<input checked="" type="checkbox"/> Final Exam	1	20%
<input type="checkbox"/> Short Quizzes		
<input type="checkbox"/> Oral Reports	1	5%
<input type="checkbox"/> Monographies		
<input type="checkbox"/> Portfolio		
<input checked="" type="checkbox"/> Projects	1	20%
<input type="checkbox"/> Journals		
<input type="checkbox"/> Other, specify: Laboratory		20%
TOTAL:		100%

10. Bibliography:

Evi Nemeth, Garth Snyder, and Trent R. Hein, Linux Administration Handbook, 2nd Ed., Prentice Hall, 2006.

Steve Shah and Wale Soyinka, Linux Administration: A Beginner's Guide , 4th Ed., McGraw-Hill, 2005.

11. According to Law 51

Students will identify themselves with the Institution and the instructor of the course for purposes of assessment (exams) accommodations. For more information please call the Student with Disabilities Office which is part of the Dean of Students office (Chemistry Building, room 019) at (787)265-3862 or (787)832-4040 extensions 3250 or 3258.

12. Contribution of Course to meeting the requirements of Criterion 5:

Math	Basic Science	General	Engineering Topic
			√

12. Course Outcomes

**Map to
Program
Outcomes**

1. Perform basic system administration tasks (a)
2. Install an operating system such as Linux or FreeBSD (b)
3. Configure individual systems including network setup (b)
4. Identify and become aware of the state-of-the-art of representative computer hardware (j)
5. Obtain and select from various options for providing a service, for example electronic mail (a)
6. Configure and update typical system services (a)
7. Identify characteristics of a typical hacking attack (e)
8. Perform forensic analysis of intrusion attempts using system tools (a)
9. Relate ethical, legal and social issues to formulating system administration policies (f)
10. Define, implement and test a significant project relating to system administration or security (c)
11. Coordinate group accomplishment of the project (d)
12. Prepare and give oral and written project reports (g)

Person (s) who prepared this description and date of preparation:
Thomas Noack. Submitted by: Manuel Rodríguez, March 2007