

**CIIC 4070 - Course Syllabus**

**1. General Information:**

Alpha-numeric codification: CIIC 4070  
Course Title: Computer Networks  
Number of credits: 3  
Contact Period: 3 hours of lecture per week

Equivalent Course: ICOM 5026

**2. Course Description:**

**English:** Study and development of skills required for the design of network protocols and network-centric applications, with emphasis on Internet protocols. Topics include: the ISO layered model, TCP/IP, routing, client-server model, World Wide Web, and web services. Practice with analysis and programming problems.

**Spanish:** Estudio y desarrollo de destrezas para el diseño de protocolos y aplicaciones orientadas a redes computacionales, con énfasis en protocolos utilizados en la Internet. Los temas incluyen: el modelo estratificado ISO, TCP/IP, establecimiento de rutas, modelo cliente-servidor, World Wide Web y "Web Services". Práctica con problemas de análisis y programación.

**3. Pre/Co-requisites and other requirements:**

Prerequisites: CIIC 4020 or ICOM 4035  
Corequisites: CIIC 4050 or ICOM 5007

**4. Course Objectives:**

Students will learn about the Fundamental protocols for network design, implementation and testing. They will also design secure network systems and analyze the performance of communication protocols.

**5. Instructional Strategies:**

conference discussion computation laboratory  
seminar with formal presentation seminar without formal presentation workshop  
art workshop practice trip thesis special problems tutoring  
research other, please specify:

**6. Minimum or Required Resources Available:**

Students will use the Departmental computer laboratories to complete course projects.

**7. Course time frame and thematic outline**

Outline	Contact Hours
Introduction to Computer Networks	4
The Physical Layer	4
The Data Link Layer	8
The Medium Access Control Sublayer	7
The Network Layer	6
The Transport Layer	6
The Application Layer	2
Network Security	3
Web App Development	3
Exams	2

**8. Grading System**

Quantifiable (letters)  Not Quantifiable

**9. Evaluation Strategies**

	Quantity	Percent
<input checked="" type="checkbox"/> Exams	2	40%
<input checked="" type="checkbox"/> Final Exam	1	30%
<input type="checkbox"/> Short Quizzes		
<input type="checkbox"/> Oral Reports		
<input type="checkbox"/> Monographies		
<input type="checkbox"/> Portfolio		
<input checked="" type="checkbox"/> Projects	2-3	30%
<input type="checkbox"/> Journals		
<input type="checkbox"/> Other, specify:		
<b>TOTAL:</b>		<b>100%</b>

**10. Bibliography:**

1. James F. Kurose and Keith W. Ross, *Computer Networking: A Top-Down Approach Featuring the Internet*, 6th ed., Pearson, 2012.
2. Larry L. Peterson and Bruce S. Davie, *Computer Networks: A Systems Approach*, 5th ed., Morgan Kaufmann, 2011.
3. Andrew S. Tanenbaum and David Wetherall, *Computer Networks*, 5th ed., Prentice Hall, 2010.
4. Thomas Robertazzi, *Basics of Computer Networking*, Springer, 2012.  
<http://dx.doi.org/10.1007/978-1-4614-2104-7>. [Available via Springer eBooks, UPRM General Library Databases]

**11. Course Outcomes**

Upon completion of this course the student will be able to:	Program Student Outcomes
1. explain the layered model in the context of existing and emerging computer networks	1, 8
2. analyze the structure of existing and emerging computer networks	1, 8
3. analyze the protocols in existing and emerging computer networks	1, 8
4. evaluate the performance of protocols in computer networks	1, 7
5. identify the networking standards in existing and emerging computer networks	1, 8
6. design, configure, and evaluate multi-hop wireless mesh networks	2, 7
7. design, implement, and evaluate multi-layer protocols	2, 6

**12. 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 (Office #4) at (787)265-3862 or (787)832-4040 extensions 3250 or 3258.

**13. Academic Integrity**

-The University of Puerto Rico promotes the highest standards of academic and scientific integrity. Article 6.2 of the UPR Students General Bylaws (Board of Trustees Certification 13, 2009-2010) states that academic dishonesty includes, but is not limited to: fraudulent actions; obtaining grades or academic degrees by false or fraudulent simulations; copying the whole or part of the academic work of another person; plagiarizing totally or partially the work of another person; copying all or part of another person answers to the questions of an oral or written exam by taking or getting someone else to take the exam on his/her behalf; as well as enabling and facilitating another person to perform the aforementioned

behavior. Any of these behaviors will be subject to disciplinary action in accordance with the disciplinary procedure laid down in the UPR Students General Bylaws.—