Department of Computer and Electrical Engineering and Computer Science
Florida Atlantic University
Course Syllabus

1. Course title/number, number of credit hours

CNT 4104 – Introduction to Data Communications	3 credit hours

2. Course prerequisites, co-requisites, and where the course fits in the program of study

Prerequisites: COP 3530 Data Structures and Algorithm Analysis

3. Course logistics

Term: Fall 2013
This is a 100% online course with no face-to-face sessions. All course material and assignments are handled using Blackboard, at http://bb.fau.edu.

4. Instructor contact information

Instructor's name	Dr. Ionut Cardei
Office address	EE419
Office Hours	TBA
Contact telephone number	(email preferred)
Email address	icardei@cse.fau.edu

5. Communication Policy

The preferred mode of communication for private messages to the instructor is using Blackboard's Message tool. For questions or concerns related to the course, please check first the "Class Q&A" Discussion Board on Blackboard. Expect answers within 48 hours from posting. For private messages sent via the Messages tool expect a reply within 24 hours, excluding the weekend period or holidays. For more urgent communication, contact the instructor via email.

6. Course description

This course provides an introduction to fundamental concepts in the design of data communications networks, networking protocols, and applications. Topics to be covered include network architectures, physical media, protocols for data link, network, transport, and application layers. Students acquire hands on experience programming TCP/IP network applications with the sockets API and with the OPNET packet-driven network simulator.

7. Course objectives/student learning outcomes/program outcomes

Student learning outcomes & relationship to ABET a-i objectives (computing programs)	1. Demonstrate understanding of the layered architecture of communication protocols (a,b,i). 2. Explain the fundamentals of the physical layer, data link layer, and medium access control (a,b,i). 3. Demonstrate understanding of the IP addressing and networking architecture (a,b,i). 4. Explain the working of the TCP and UDP protocols (a,b,i). 5. Simulate network applications on complex network topologies and analyze application performance (a,b,c,d,f).

8. Course evaluation method

2 exams .....35 % Assignments ..... 50 % Project ..... 15 %	The assignment types include BB tests, free-form answer problems, OPNET simulation studies, network programming, and graded Discussion Board posts. The project consists of a detailed network simulation study using OPNET IT Guru, a report, and requires teams of 2 students. The 2 exams take 2-3 hours each and are given online, with a min. 24h window on the dates posted on BB.

9. Course grading scale (tentative)

A: 100-95, A-: 94-90, B+: 89-85, B: 84-80, B-:79-75, C+: 74-72, C: 71-68, C- 67-60, D: 59-50, F:49-0

10. Policy on makeup tests, late work, and incomplete grades

Makeup tests are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student of participating in the exam.

Late work is not acceptable.

Incomplete grades are against the policy of the department. Unless there is solid evidence of medical or otherwise serious emergency situation incomplete grades will not be given.

11. Computing Resources and Software

Students should have access to a PC running Windows or Linux with internet access . Students are required to download and install OPNET IT Guru Academic Edition in order to complete an assignment. The software URL is http://www.opnet.com/university_program/itguru_academic_edition/index.html

12. Participation

This course is delivered entirely online and all material and assignments will be posted on Blackboard. Students should log in at least two times per week to make sure they are up to date with announcements, postings, messages, and assignments. Students who fail to meet this obligation are considered to abandon the course and will be dropped from the course. Being dropped from the course is irrevocable. In case of major illness or other large-scale issues, students should contact the instructors immediately to formulate a resolution (if possible). Notifying the instructors after the fact will not be sufficient to prevent being dropped.

13. Disability policy statement

In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must

register with the Office for Students with Disabilities (OSD) located in Boca Raton campus, SU 133 (561) 297-3880 and follow all OSD procedures.

14. Honor code policy

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at
www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf

15. Required texts/reading

Data Communications and Networking, 5th ed., Behrouz A. Forouzan, McGraw-Hill, 2012, ISBN-10: 0073376221 | ISBN-13: 978-0073376226

16. Supplementary/recommended readings

Online articles.

17. Course topical outline

Introduction
Network Models
Data and Signals
Digital & Analog Transmission
Multiplexing and Switching
The OPNET IT Guru Network Simulator
Link Layer Basics: Error Detection and Correction, Multiple Access, Data Link Control
Wired LANs: Ethernet
Wireless LANs: IEEE 802.11
Connecting LANs, Backbone Networks, and VLANs
Network Layer: logical Addressing and the Internet Protocol (IP)
Network Layer: Address Mapping and Error Reporting
Network Layer: Delivery, Forwarding, Routing
Transport Layer: UDP and TCP
DNS and WWW