



Northern New Mexico College

**(Edit all this content) EECE-132 COMPUTER NETWORKS I
Fall 2011**

Hybrid Course:

Theory Sessions: Delivered online through blackboard

Lab Sessions: 4:30 PM -7:00 PM Friday (Section 201)

3 Semester Hours

Description	<p><i>This information can be obtained from the Catalog</i></p> <p>The focus of this course is on learning the fundamentals of networking. Students will learn both practical and conceptual skills that build the foundation for understanding basic networking. First, students will examine human versus network communication and see the parallel between them. Next, students will be introduced to the two major models used to plan and implement networks: OSI and TCP/IP. Students will gain an understanding of the layered approach to networks and examine the OSI and TCP/IP layers in detail to understand their functions and services. They will become familiar with the various networks devices, network addressing schemes and, finally, the types of media used to carry data across the network. Students will gain experience using designing and deploying inter-networks of WAN and LANS using static routing. Tools such as packet tracer and network protocol analyzers will be extensively used in the course.</p>	
Textbook	<p><i>This information can be obtained from the Department Chair</i></p> <p>Network Fundamentals – CCNA Exploration V 4.0, Cisco Network Academy, Cisco Press, 2010. Reference: D. Comer, Computer Networks and Internets, 5th Edition, Prentice Hall, 2009</p>	
Prerequisites	Basic Math	
Course	EECE 132 Computer Networks I (Edit)	
Blackboard	EECE 132 Section 201 (Edit)	
Class Room	HT 118 (Lab Sessions) (Edit)	
Instructor	Dr. Ivan Lopez Hurtado (Edit)	
Office	HT 102c (Edit)	
Office Hours	Online chat (Tuesday from 9:00 am-10:00 am) or by appointment (send me an email) (Edit)	
Phone	505-747-2264 (Edit)	
Email	ilopez@nnmc.edu (Edit)	
I.	Course Objectives	<ul style="list-style-type: none"> • (Edit) • Use network protocol models to explain the layers of communication of data networks. • Design and build simple Inter-networks WAN/LAN using industrial switches and routers, and devise appropriated IP addressing schemes including subnet masks and addresses. • Employ basic cabling and network designs to connect devices, following industry standards guidelines. • Use Cisco CLI commands to perform router and switch configuration and verification. • Analyze the operation and features of the transport and network layer protocols.
II.	Student Program-Level Learning Outcomes	<p><i>This information can be obtained from the Department Chair for the ME program and from Dr. Jorge Crichigno for the IT program</i></p> <p>Program-level student learning outcomes that are exposed, reinforced, and assessed for this course in the Information Technology program are as follows.</p> <p>Reinforced ABET outcome 11. A commitment to quality, timeliness, and continuous improvement.</p> <p>Assessed ABET outcome 4. An ability to apply creativity in the design of systems, components, or processes appropriate to program educational objectives. ABET outcome 6. An ability to identify, analyze and solve technical problems.</p>



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		<p>ABET outcome 12. The application of Computer and network hardware, operating systems, system and network administration, programming languages, applications software, and databases in the building, testing, operation, and maintenance of hardware and software systems.</p> <p>ABET outcome 14. The ability to design, implement, maintain and provide for the security of facilities involved with the processing and transfer of information.</p> <p>Program-level student learning outcomes that are exposed, reinforced, and assessed for this course in Software Engineering program are as follows.</p> <p>Reinforced</p> <p>ABET outcome 6. An understanding of professional and ethical responsibility. ABET outcome 10. A knowledge of contemporary issues. ABET outcome 11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.</p> <p>Assessed</p> <p>ABET outcome 3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.</p>
III.	Expectations and Efforts	<ol style="list-style-type: none"> 1. Conduct (Keep Item 1) Students are expected to comply with the <i>Student Code of Conduct</i> found in the <u>NNMC Student Handbook</u>. 2. Verbal communications (Edit) Oral and written communications are important in the educational setting. Each student is expected to participate in online and classroom discussions and in team settings as part of their training for entering the work environment of a practicing engineer. Written homework assignments will be given regularly as summarization exercises of points covered in class. They will be submitted through blackboard in an electronic form. You can work them by hand and then scan them. 3. Expected Study and Work Level (Edit) <ol style="list-style-type: none"> A. It has been suggested that a necessary but not sufficient condition for an undergraduate student expecting a C to work 8 hours outside of class for a 4-hour credit course and 12 hours of outside study time for an expectation of a B in the same course. Students will be required to use several software packages including (Packet Tracer & Wireshark) in the Computer Room HT 118 for assignments. B. Textbook readings and supplemental material will be posted in blackboard and it is responsibility of the student to read it (and/or listen it when audio is available). Quizzes and homework will be based on the material. C. This syllabus indicates the sessions in which the course topics will be covered. Sequence and number of sessions on certain topics may vary depending on the needs of the class and unforeseeable requirements for re-scheduling due to NNMC events, classroom availability, etc. Students are encouraged participate ACTIVELY in the online discussions and review theoretical material previous to the lab sessions. D. From time to time, the instructor will used some of the lab sessions as problem recitation sessions. (Keep Next Item # 4) 4. Other Guidelines: If you are a qualified person with disabilities who might need appropriate academic adjustments, please communicate with me as soon as possible so that we may make appropriate arrangements to meet your needs in a timely manner. Frequently, we will need to coordinate accommodating activities with other offices on campus. Course materials can be made available in alternative formats. It is expected



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		<p>you will respect others by not using communication devices such as cell phones and PDA's during the lab session period and they should be put into a "silent" mode. Any violation of the Student Code of Conduct will be taken very seriously and appropriate sanctions will be applied. Violations include: plagiarism, exam misconduct, etc.</p>
IV	Nature of Course	<p>1) Background (Edit)</p> <p>The material covered in EECE 132 requires basic math knowledge: how to add, subtract and multiply basically.</p> <p>2) Grades (Edit, feel free to develop your own grading policy)</p> <p>Grading is a method of providing feedback on how well the student has grasped and applied the concepts covered in class and the labs. Students are expected to demonstrate their understanding of the course material through homework, quizzes, and exams. Attendance to the lab will be evaluated as well. The student's final grade will reflect the composite performance in the following four areas:</p> <ul style="list-style-type: none"> 20% Homework 10% Quizzes 20% Labs 10% Online discussions 10% Ten Progress Exams (1% each) 30% Final <p>NOTE: For any missed lab class above <u>two</u>, the student final grade will be decreased in (5/100) points. For any late attendance to the lab sessions above <u>two</u> (missed classes does not count as late attendance), the student final grade will be decreased in (2/100) points.</p> <p>NOTE: Do not consider seriously your midterm grade. It is very misleading because it is based in very few assignments. A good midterm grade does not mean necessarily a great final grade. A low midterm grade does not necessarily mean that you will fail.</p> <p>Grade Assignment:</p> <ul style="list-style-type: none"> A+ 97 and above A 94 and above but below 97 A- 90 and above but below 94 B+ 87 and above but below 90 B 84 and above but below 87 B- 80 and above but below 84 C+ 77 and above but below 80 C 74 and above but below 77 C- 70 and above but below 74 D 69 and below but above 59 F 59 and below. <p>(Edit all the following items)</p> <p>2) Quizzes, Exams, Class Participation, Preparation and Homework</p> <p>Quizzes, normally 15 minutes in duration, will be administered online. Participation is expected and will be graded. The participation will be in the form of online discussions through blackboard. The progress exams will be delivered during in class during the lab sessions. The final exam will be delivered on class as well in the assigned date according to the academic calendar.</p>



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V.	Academic Calendar	<div style="display: flex; align-items: center;"> <div style="background-color: black; color: white; padding: 5px; writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; margin-right: 10px;">FALL 2011</div> <table border="0"> <tr><td>Deadline for Degree & Certificate Students to Submit an Application for Fall 2011.....</td><td>Friday, Aug 12</td></tr> <tr><td>Payment deadline: pay in full, 10% down plus a payment plan, or be disenrolled</td><td>Friday, Aug 12</td></tr> <tr><td>Deadline for Non-Degree Students to Submit an Application for Fall 2011.....</td><td>Thursday, Aug 18</td></tr> <tr><td>Registration.....</td><td>Monday, Apr 11 through Sunday Aug 21</td></tr> <tr><td>Convocation.....</td><td>Monday, Aug 15</td></tr> <tr><td>Last Day to Take Placement Tests Prior to Fall 2011</td><td>Thursday, Aug 18</td></tr> <tr><td>Classes Begin</td><td>Monday, Aug 22</td></tr> <tr><td>Late Registration (one day only)</td><td>Monday, Aug 22</td></tr> <tr><td>Last Day to Change Schedule (Drops/Adds only).....</td><td>Sunday, Aug 28</td></tr> <tr><td>Last Day to Change from CR-AU/AU-CR</td><td>Friday, Sep 2</td></tr> <tr><td>Last Day to Drop from a Full-Term Course with a Refund</td><td>Sunday, Sep 4</td></tr> <tr><td>Holiday (Labor Day)</td><td>Monday, Sep 5</td></tr> <tr><td>Last Day to Receive a Refund for Texts through the Bookstore</td><td>Thursday, Sep 1</td></tr> <tr><td>Last Day to Drop from a Full-Term Course without Record</td><td>Sunday, Sep 11</td></tr> <tr><td>Deadline to Submit a Petition to Graduate for Fall 2011.....</td><td>Friday, Sep 16</td></tr> <tr><td>Mid-Term Exams</td><td>Monday-Thursday, Oct 10-13</td></tr> <tr><td>Fall Break (no classes).....</td><td>Monday-Tuesday, Oct 17-18</td></tr> <tr><td>Mid-Term Grades Due.....</td><td>Wednesday, Oct 19</td></tr> <tr><td>Faculty and Staff Development Day (no classes).....</td><td>Wednesday, Oct 19</td></tr> <tr><td>Registration for Spring 2012 Begins</td><td>Monday, Oct 24</td></tr> <tr><td>Last Day for Instructors to Initiate a Withdrawal.....</td><td>Friday, Oct 28</td></tr> <tr><td>Holiday (Veterans Day) No Classes.....</td><td>Friday, Nov 11</td></tr> <tr><td>Last Day to Withdraw from a Full-Term Course</td><td>Sunday, Nov 13</td></tr> <tr><td>Thanksgiving Break.....</td><td>Thursday-Sunday, Nov 24-27</td></tr> <tr><td>Final Exams*</td><td>Saturday-Thursday, Dec 10-15</td></tr> <tr><td>*Exam make-up days in case of bad weather.....</td><td>Friday-Saturday, Dec 16-17</td></tr> <tr><td>Last Day of Term</td><td>Friday, Dec 16</td></tr> <tr><td>Final Grades Due</td><td>Monday, Dec 20</td></tr> </table> </div>	Deadline for Degree & Certificate Students to Submit an Application for Fall 2011.....	Friday, Aug 12	Payment deadline: pay in full, 10% down plus a payment plan, or be disenrolled	Friday, Aug 12	Deadline for Non-Degree Students to Submit an Application for Fall 2011.....	Thursday, Aug 18	Registration.....	Monday, Apr 11 through Sunday Aug 21	Convocation.....	Monday, Aug 15	Last Day to Take Placement Tests Prior to Fall 2011	Thursday, Aug 18	Classes Begin	Monday, Aug 22	Late Registration (one day only)	Monday, Aug 22	Last Day to Change Schedule (Drops/Adds only).....	Sunday, Aug 28	Last Day to Change from CR-AU/AU-CR	Friday, Sep 2	Last Day to Drop from a Full-Term Course with a Refund	Sunday, Sep 4	Holiday (Labor Day)	Monday, Sep 5	Last Day to Receive a Refund for Texts through the Bookstore	Thursday, Sep 1	Last Day to Drop from a Full-Term Course without Record	Sunday, Sep 11	Deadline to Submit a Petition to Graduate for Fall 2011.....	Friday, Sep 16	Mid-Term Exams	Monday-Thursday, Oct 10-13	Fall Break (no classes).....	Monday-Tuesday, Oct 17-18	Mid-Term Grades Due.....	Wednesday, Oct 19	Faculty and Staff Development Day (no classes).....	Wednesday, Oct 19	Registration for Spring 2012 Begins	Monday, Oct 24	Last Day for Instructors to Initiate a Withdrawal.....	Friday, Oct 28	Holiday (Veterans Day) No Classes.....	Friday, Nov 11	Last Day to Withdraw from a Full-Term Course	Sunday, Nov 13	Thanksgiving Break.....	Thursday-Sunday, Nov 24-27	Final Exams*	Saturday-Thursday, Dec 10-15	*Exam make-up days in case of bad weather.....	Friday-Saturday, Dec 16-17	Last Day of Term	Friday, Dec 16	Final Grades Due	Monday, Dec 20
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Session	Area	Required Readings
1	Course Orientation and Introduction	Chapter 1
2	Living in a network-centric world.	Chapter 1
3	Communication over the network, platforms, LANs, WANs.	Chapter 2, Sections 2.1 and 2.2.
4	Protocols, Layered models.	Chapter 2, Sections 2.3 and 2.4.
5	Network addressing.	Chapter 2, Section 2.5. Chapter 2 Review.
6	Introduction to applications and services.	Chapter 3, Sections 3.1 and 3.2.
7	Application layer protocols and services, DNS, HTTP.	Chapter 3, Section 3.3.
8	Application layer protocols and services, SMTP/POP, FTP, DHCP, P2P, Telnet.	Chapter 3, Sections 3.3.
9	Transport Layer and its role in networking. Introduction to the TCP protocol.	Chapter 4, Sections 4.1 and 4.2.
10	TCP sessions. The UDP protocol.	Chapter 4, Sections 4.3 and 4.4.
11	Introduction to the network layer and IP protocol.	Chapter 5, Section 5.1.
12	More about IP protocols; hierarchical networks.	Chapter 5, Sections 5.1 and 5.2.
13	Introduction to routing; end-to-end packet flows; gateways, store and forward paradigm.	Chapter 5, Section 5.3.
14	Routing protocols; link state and distance vector; IP packet store and forward paradigm.	Chapter 5, Sections 5.3 and 5.4.
15	IPv4 addresses, introduction and types.	Chapter 6, Sections 6.1 and 6.2.
16	Address planning.	Chapter 6, Sections 6.3 and 6.4.
17	IP Subnets; testing the network layer.	Chapter 6, Sections 6.5 and 6.6.
18	Review Chapter 6.	Chapter 6.
19	Role of the data link layer and media access control techniques.	Chapter 7. Sections 7.1 and 7.2.
20	Media access control addressing and protocols.	Chapter 7. Sections 7.3 and 7.4.
21	Introduction to the Physical Layer. Signaling and encoding. Physical media.	Chapter 8, Sections 8.1, 8.2, and 8.3.
22	Physical media.	Section 8.3.
23	Ethernet. Overview, frame format, operation in a LAN.	Chapter 9, Sections 9.1, 9.2, and 9.3.
24	Ethernet media access control, CSMA/CD, timing, backoff.	Chapter 9, Section 9.4.
25	Ethernet Physical layer, hubs and switches, ARP.	Chapter 9, Sections 9.5, 9.6, and 9.7.
26	Planning and cabling networks, device interconnections.	Chapter 10, Sections 10.1 and 10.2.
27	Developing addressing schemes and subnets.	Chapter 10, Sections 10.3, 10.4, and 10.5.
28	Configuring and testing networks.	Chapter 11, Sections 11.1 and 11.2.
29	Configuring and testing networks II.	Chapter 11, Sections 11.3 and 11.4.
30	Review.	
31	Exam.	