ITNW 2313: NETWORKING HARDWARE
Online Course Version

COMPUTER TECHNOLOGY DEPARTMENT

CATALOG DESCRIPTION

ITNW 2313 Networking Hardware  . CIP 1109010007
Maintain network hardware devices. Topics include network cables, servers, and workstations; network connectivity devices such as routers, hubs, bridges, gateways, repeaters, and uninterruptible power supplies; and other networking hardware devices. (3 SCH, 2 lecture, 3 lab)
Prerequisites: ITSC 1305 and ITNW 1325 or approval of the division chair.
Required skill level code: College-level reading.

PREPARED BY: ___________________________ DATE: __________
INSTRUCTOR

RECOMMENDED BY: ___________________________ DATE: __________
DIVISION CHAIRMAN

RECOMMENDED BY: ___________________________ DATE: __________
DEAN

APPROVED: ___________________________ DATE: __________

The Brazosport College District shall not discriminate against, or exclude from participation in any benefits or activities either on the staff or in the student body, any person on the grounds of sex, race, color, religion, national origin, age, or handicap.
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COURSE EVALUATION

STUDENT EVALUATION

A. D2L and LabSim Participation will account for no more than 10% of the total grade.

B. Unit / Section Tests (Major Exams) will account for no more than 45% of the total grade.

C. Labs will account for no more than 20% of the total grade.

D. The Final Exam will account for no more than 25% of the total grade.

INSTRUCTOR EVALUATION

A. Students will be given an opportunity to evaluate their instructor and the course content.

B. The instructor will review and evaluate in terms of withdrawal rate.

C. Final grades given will be reviewed in an effort to determine if a pattern of high or low grades exists.

DEPARTMENT EVALUATION OF COURSE

A. Faculty and the Division Chair will review students’ grades and withdrawal trends.

B. Faculty and the Division Chair will review the Course Competencies and Perspectives Assessment.
GENERAL GOALS/OBJECTIVES

Students will work with and maintain network hardware devices including network cabling and wireless devices; network connectivity devices such as hubs, bridges and switches, routers, gateways, and uninterruptible power supplies; servers and workstations. Students will correctly inventory network equipment and document network configurations and modifications.

SPECIFIC GOALS/OBJECTIVES

1. Describe the function of the following network devices: hubs, switches / bridges, routers
2. Configure and modify network settings and protocols on workstations and servers.
4. Demonstrate router configuration.
5. Configure Cisco routers using the setup mode, manually, or via TFTP server.
6. Edit and modify Cisco router configuration files using RIP and OSPF routing protocols.
7. Configure Cisco router access lists for network security.
8. Use network diagrams to configure and troubleshoot network devices.
1. Describe the function of the following network devices: hubs, switches/bridges, routers.
   
   Assessment: On written exams, the student will successfully identify the functions of hubs, switches/bridges, and routers.

2. Configure and modify network settings and protocols on workstations and servers.
   
   Assessment: On lab assignments, students are required to configure and modify network settings and protocols to enable successful operation of workstations and servers on the network.

   
   Assessment: On labs, students will successfully connect hubs and switches into networks and successfully establish operational networks.

4. Demonstrate router configuration.
   
   Assessment: On labs and written exams, students will demonstrate router configuration by answering questions covering correct router command syntax. On labs, students will successfully configure routers and successfully establish network connectivity given a set of requirements provided by the instructor.

5. Configure Cisco routers using the setup mode, manually, or via TFTP server.
   
   Assessment: Students will successfully configure routers by establishing correct network connectivity on lab #3 using setup mode, on lab #4 manually, and lab#8 using a TFTP server.

6. Edit and modify Cisco router configuration files using RIP and OSPF routing protocols.
   
   Assessment: Students will successfully establish network connectivity by editing and modifying Cisco router configuration files using RIP and OSPF routing protocols on labs and the comprehensive lab.

7. Configure Cisco router access lists for network security.
   
   Assessment: Students will successfully establish network security by configuring Cisco router access lists to block undesired traffic from reaching the lab network on labs.

8. Use network diagrams to configure and troubleshoot network devices.
   
   Assessment: Students will successfully complete network configurations and modifications using lab simulation software which require a 100% passing score to successfully complete.
BRAZOSPORT COLLEGE  
SYLLABUS  
ITNW 2313 NETWORKING HARDWARE  
Online Course Version

Instructor: Fenn, Bill  
Office Phone: (979) 230-3261  
Office: D.226

Alt. Phone: (979) 230-3229 Division Secretary

E-mail: D2L course email should be your first attempt to email me otherwise use: 
William.Fenn@brazosport.edu

Course Websites: https://online.brazosport.edu for course assignments, communication, grades, etc…and http://www.testout.com for actual course content delivery

COURSE DESCRIPTION

Preparation to work with and maintain network hardware devices. Topics include network cabling and wireless devices; network connectivity devices such as hubs, bridges and switches, routers, gateways, and uninterruptible power supplies; servers and workstations; and other networking hardware devices. CIP 1109010007 (3SCH, 2 lecture, 3 lab)

PREREQUISITES

ITNW 1325 Fundamentals of Networking

TEXTBOOKS OR COURSE MATERIAL INFORMATION

No textbook will be used for the course.

LabSim web-based software will be used in place of the textbook.  
***Warning*** You cannot pass this course if you do not have the LabSim software access.  
Procedures for students to obtain LabSim software are listed below. 
Contact the BC Bookstore 979-230-3410 or http://www.brazosport.edu/bookstore/Pages/default.aspx to order LabSim software activation codes. 
Be sure and ask for the LabSim software that matches the course that you are taking. For ITNW 2313 Network Hardware, the LabSim course is: 
TestOut Routing and Switching Pro ISBN: 978-1-935080-55-8

****Warning**** Students should never purchase LabSim course from another student or off a website like eBay.com or Amazon.com as once the activation code is used then it cannot be used for another student. The LabSim license cannot be resold by an individual.  
The BC Bookstore and the instructor are not responsible for problems or resolution if you choose to order LabSim from other sources.  
Refunds cannot be given once Activation codes are purchased from the BC Bookstore.

LAB REQUIREMENTS

Labs are available for student use at Brazosport College.
ATTENDANCE AND WITHDRAWAL POLICIES

***Your online activities in BC Virtual Campus (D2L) and/or LabSim are tracked for course participation. Failure to log into the systems and to make satisfactory progress (checking announcements, emails, viewing materials, doing labs, and exams) according to the schedule of assignments listed in BC Virtual Campus (D2L) may result in your dropping/withdrawal from the course by the instructor.

D2L and LabSim Participation: You are required to log into D2L at least three different days during each week to check assignments, email, discussions, etc. There will be a one-point deduction for every week that you do not log in on three different days.

Course weekly assignments and communication will be distributed through the D2L course management system of Brazosport College. https://online.brazosport.edu

Students will be dropped if they miss more than 20% of the classes before the drop date. Tardees and leaving early will count as part of an absence.

<table>
<thead>
<tr>
<th>Fall and Spring 15 Week Semesters</th>
<th>Maximum absences before being dropped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Meetings</td>
<td>One per week</td>
</tr>
</tbody>
</table>

It is the student's responsibility to withdraw from a course if circumstances occur that could prevent the student from successfully completing that course. Students should notify instructor of decision to withdraw and must not expect nor assume the instructor will complete the paperwork for the student. The instructor will complete required paperwork only if the instructor decides to drop a student for cause. Failure to notify instructor of withdrawal could result in the student failing the course.

Please note that changes in the Texas Education Code state that students enrolling for the first time in a Texas public institution of higher education in the fall of 2007 or after, will not be permitted to withdraw from more than a total of six courses (no minimum number of credit hours on each course) in which the student is officially enrolled during the student's period of undergraduate study at all such institutions (this includes any course a transfer student has dropped at another institution of higher education). See http://www.brazosport.cc.tx.us/CurStu.html for more information.
COURSE REQUIREMENTS AND GRADING POLICIES

The total of all quizzes, D2L participation, labs, tests, and the final are worth 100 points. Each category is given the following weight:

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2L and LabSim Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Unit Tests (Major Exams)</td>
<td>45%</td>
</tr>
<tr>
<td>Labs</td>
<td>20%</td>
</tr>
<tr>
<td>Final Examination</td>
<td>25%</td>
</tr>
</tbody>
</table>

Letter grades will be assigned as follows:

- 90%+        A
- 80%-89%     B
- 70%-79%     C
- 60%-69%     D
- 0%-59%      F

TESTING

Major exams for this course are listed on the class schedule and are delivered through www.testout.com. There will be a comprehensive final exam for this course.

MAKE-UP POLICY

There are no makeup exams for tests administered online through LabSim. Failure to take the tests and exams during the times listed in the BC Virtual Campus (D2L) and LabSim schedules will result in a ZERO for that score.

STUDENT RESPONSIBILITIES

Students are expected to fully participate in the course. The following criteria are intended to assist you in being successful in this course:

a. understand the syllabus requirements
b. use appropriate time management skills
c. communicate with the instructor
d. complete course work on time, and
e. utilize online components (such as Desire2Learn) as required.

Students are also expected to take care of the equipment in the classroom. PLEASE DO NOT BRING FOOD, DRINKS, OR UNAUTHORIZED PERSONS INTO THE CLASSROOM.

STUDENTS WITH DISABILITIES

Brazosport College is committed to providing equal education opportunities to every student. Brazosport College offers services for individuals with special needs and capabilities including counseling, tutoring, equipment, and software to assist students with special needs. Please contact the Special Populations Counselor, 979.230.3236, for further information.
ACADEMIC HONESTY
Brazosport College assumes that students eligible to perform on the college level are familiar with the ordinary rules governing proper conduct including academic honesty. The principle of academic honesty is that all work presented by you is yours alone. Academic dishonesty including, but not limited to, cheating, plagiarism, and collusion shall be treated appropriately. Please refer to the Brazosport College Student Guide for more information. This is available online at http://www.brazosport.edu. Click on the CATALOGS AND SCHEDULES link under STUDENTS.

Academic dishonesty violates both the policies of this course and the Student Code of Conduct. In this class, any occurrence of academic dishonesty will be referred to the Dean of Student Services for prompt adjudication, and will, at a minimum, result in a ZERO for the test or assignment in this course. Sanctions may be imposed beyond your grade in this course by the Dean of Student Services.

OTHER STUDENT SERVICES INFORMATION
Information about the Library is available at http://www.brazosport.edu/library or by calling 979.230.3310.

For assistance with online courses, an open computer lab, online and make-up testing, audio/visual services, and study skills, visit Learning Services next to the Library, call 979.230.3253, or visit http://www.brazosport.edu/learningservices.

For drop-in math tutoring, the writing center, supplemental instruction and other tutoring including e-tutoring, visit the Student Success Center, call 979.230.3527, or visit http://www.brazosport.edu/studentsuccesscenter.

To contact the name of dept. Department call (add phone # here).

The Student Services provides assistance in the following:

- Counseling and Advising 979.230.3040
- Financial Aid 979.230.3294
- Student Life 979.230.3355

To reach the Information Technology Department for computer, email, or other technical assistance call the Helpdesk at 979.230.3266.
### ADDENDUM A

#### SCANS COMPETENCIES

**ITNW 2313 Networking Hardware**

<table>
<thead>
<tr>
<th>Competency Reference</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Resource</strong></td>
<td></td>
</tr>
<tr>
<td>Time Management,</td>
<td>Students are required to turn in labs on time. If a lab is turned in late, student’s grades are penalized.</td>
</tr>
<tr>
<td>Facilities/Materials,</td>
<td>Students are required to use on-line help and the computers in lab.</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Students are encouraged to seek help from their classmates during lab and in the event they are absent and miss assignments and/or notes.</td>
</tr>
<tr>
<td><strong>2. Interpersonal</strong></td>
<td></td>
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<tr>
<td>Leadership,</td>
<td>Students are encouraged to work in teams helping and learning from each other</td>
</tr>
<tr>
<td>Part. as Team Member,</td>
<td>Class projects require students to work as members of a team</td>
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<tr>
<td>Works with Diversity</td>
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<tr>
<td><strong>3. Information</strong></td>
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<tr>
<td>Acquiring,</td>
<td>Course goals and performance objectives for labs require acquisition, organization, interpretation and evaluation of data</td>
</tr>
<tr>
<td>Organizing,</td>
<td></td>
</tr>
<tr>
<td>Interpreting</td>
<td></td>
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<tr>
<td><strong>4. Systems, Under-</strong></td>
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<tr>
<td>Organizational Syst.</td>
<td>Students will be asked to modify files and computer settings using appropriate software as outlined on a lab, project, or final exam</td>
</tr>
<tr>
<td>Technological Systems,</td>
<td></td>
</tr>
<tr>
<td>Social Systems</td>
<td>Students will be monitoring and correcting their performance in all of the labs and on all exams.</td>
</tr>
<tr>
<td><strong>5. Technology</strong></td>
<td></td>
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<tr>
<td>Selecting,</td>
<td>Students are expected to select the proper software and hardware tools and devices, invoke them, and then ensure the work is meeting the expected outcomes. If the outcomes are not as expected, the student is expected to make the appropriate changes to achieve the outcome.</td>
</tr>
<tr>
<td>Applying,</td>
<td></td>
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<tr>
<td>Maintaining</td>
<td></td>
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<tr>
<td><strong>6. Basic Skills</strong></td>
<td></td>
</tr>
<tr>
<td>Reading, Writing,</td>
<td>Lectures and labs require students to read, write, and use mathematical skills.</td>
</tr>
<tr>
<td>Mathematics,</td>
<td>Students are expected to listen to the lecture, because not all information appears in the text.</td>
</tr>
<tr>
<td>Speaking, Listening</td>
<td>Students are encouraged to ask questions and participate in class discussions.</td>
</tr>
<tr>
<td><strong>7. Thinking Skills</strong></td>
<td></td>
</tr>
<tr>
<td>Decision Making,</td>
<td>Most labs require students to use their creative and problem-solving skills. The student must perceive the problem, find a way to get the data into the right form, so the expected output can be achieved.</td>
</tr>
<tr>
<td>Problem Solving,</td>
<td></td>
</tr>
<tr>
<td>Learning Techniques</td>
<td></td>
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<tr>
<td><strong>8. Personal Quali-</strong></td>
<td></td>
</tr>
<tr>
<td>Responsibility,</td>
<td>Students will be required to monitor their time, especially on labs, exams, and on the final. It is the student’s responsibility to turn in their labs on time. The student is expected to be honest and do their own labs and exams. This is monitored!</td>
</tr>
<tr>
<td>Sociability,</td>
<td></td>
</tr>
<tr>
<td>Integrity/Honesty</td>
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</tbody>
</table>
This is a tentative schedule for the course. The instructor reserves the right to make schedule changes based on the needs of the class. The assignment schedule in D2L takes precedence over this schedule for any changes occurring during the semester.

**Week 1**
D2L News and Syllabus review and TestOut / Lab Sim Activation Code Purchase
LabSim Section 1.0 Introduction and Section 2.1 Networking Fundamentals

**Week 2**
LabSim Section 2.2 Network Devices through Section 2.5 OSI Networking Model

**Week 3**
LabSim Section 2.6 Data Communications through Section 2.8 WAN Fundamentals

**Week 4**
**LabSim - Test #1 over Sections 2.1 – 2.8 (Study the Practice Questions content)**
LabSim Section 3.1 Cisco Device Access through Section 3.4 Command Line Help

**Week 5**
LabSim Section 3.5 Basic Device Settings through Section 3.6 Device Passwords

**Week 6**
LabSim Section 4.1 Switching Overview through Section 4.3 Switch Interface Configuration

**Week 7**
**LabSim – Test #2 over Sections 3.1 to 3.6 (Study the Practice Questions content)**
LabSim Section 4.4 Switch IP Configuration through Section 4.6 Trunking

**Week 8**
LabSim Section 4.7 Switch Security through Section 4.9 Cisco Discovery Protocol

**Week 9**
LabSim Section 5.1 IPv4 Overview through Section 5.3 Subnetting

**Week 10**
LabSim Section 5.4 VLSM through Section 5.5 Subnet Planning and Design

**Week 11**
LabSim Section 6.1 IP Routing through Section 6.4 Dynamic Routing

**Week 12**
**- Test #3 will consist of the Average of All of the Practice Question tests in LabSim**
LabSim Section 6.6 OSPF Overview and 6.7 OSPF Configuration

**Week 13**
LabSim Section 7.2 ACLs through Section 7.5 Extended ACL Configuration

**Week 14**
Improve LabSim Lab and Sub-topic Practice Question Scores

**Week 15**
All LabSim Labs and Sub-topic Practice Question are to be completed.

**Week 16**  **LabSim - Final Exam**