CENTRAL TEXAS COLLEGE
ITNW 1454
IMPLEMENTING AND SUPPORTING SERVERS

Semester Hours Credit: 4

INSTRUCTOR: ________________________________

OFFICE HOURS: ______________________________

I. INTRODUCTION

A. This course focuses on implementing, administering, and troubleshooting information systems that incorporate servers in a networked computing environment. Emphasis will be on the Microsoft Windows Server environment.

B. This course serves as a required or elective course on various degree plans. Curriculum plans for degrees and certificates are listed in the current Central Texas College Catalog.

C. The delivery method of this course may be traditional lecture/lab, blended lecture/lab, or online.

D. Prerequisites: ITNW 1316 Network Administration AND ITNW 1345 Implementing Network Directory Services.

II. LEARNING OUTCOMES

Upon successful completion of this course, Implementing and Supporting Servers, the student will be able to:

A. Setup and configure servers, peripherals, and devices. (C18, C19, C20, F1)
B. Install and configure network servers. (C5, C6, C8, C15, F1, F8, F10)
C. Configure directory replications. (C18, C19, C20, F1)
D. Manage licensing. (C6, C7, C8, C20, F1, F2, F13)
E. Create and manage system policies and profiles. (C5, C6, C8, C15, C16, C17, C18, C19, C20, F1, F8, F9)
F. Administer remote servers and disk resources for interoperability. (C15, C17, C19, F1, F8, F10)
G. Install and configure Remote Access Service (RAS). (C18, C19, C20, F1)
H. Identify and monitor performance bottlenecks and resolve configuration problems. (C5, C6, C8, C15, C16, C17, C18, C19, C20, F1, F8, F10)
I. Create and share resources (C3, C8, C16, C19, F8, F10)
J. Implement fault-tolerance (C3, C16, C17, C19, F8, F9)

April 2015
III. INSTRUCTIONAL MATERIALS

A. The instructional materials identified for this course are viewable through www.ctcd.edu/books

B. Lecture Classes also require at least one USB storage device. Online students may use cloud based storage.

IV. COURSE REQUIREMENTS

A. Attend both lecture and lab or in the case of online delivery, be actively engaged in Blackboard and maintain constant progress.

B. Be prepared to participate in discussion, team projects/assignments and take unannounced assessments relating to the lecture materials.

C. Complete all exams/assessments.

D. Submit all assignments on time.

V. ASSESSMENTS

A. Student content mastery will be evaluated in the following areas:
   • Assessments (midterm exam, quizzes, projects, discussion etc.)
   • Final Assessment (final exam and/or semester project, participation)

B. Scheduled and unscheduled assessments will be given at the discretion of the instructor.

C. Exams/assessments may be composed of both subjective and objective questions plus computer output.

D. A student must take all exams/assessments. Both online and on campus students who know in advance that they will be absent due to school sponsored trips, military duty or orders, or any other valid reason, must arrange to take an early exam/assessment. Unexpected absences due to illness or other extenuating circumstances will require the student to contact the instructor about make-up work in lieu of the missed exam/assessment.

E. Students with unexcused absences will be given a zero for each missed assignment.
VI. SEMESTER GRADE COMPUTATION

<table>
<thead>
<tr>
<th>Course Requirements</th>
<th>Points</th>
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<tbody>
<tr>
<td>Assignments</td>
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<tr>
<td>Assessments</td>
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<tr>
<td>Final Assessment</td>
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<td><strong>TOTAL</strong></td>
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<table>
<thead>
<tr>
<th>Points</th>
<th>Grade</th>
<th>Quality Points</th>
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<tbody>
<tr>
<td>900-1000</td>
<td>A-Superior</td>
<td>4</td>
</tr>
<tr>
<td>800-899</td>
<td>B-Above Average</td>
<td>3</td>
</tr>
<tr>
<td>700-799</td>
<td>C-Average</td>
<td>2</td>
</tr>
<tr>
<td>600 - 699</td>
<td>D-Passing, but unsatisfactory</td>
<td>1</td>
</tr>
<tr>
<td>0 - 599</td>
<td>F-Failure</td>
<td>0</td>
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VII. NOTES AND ADDITIONAL INSTRUCTIONS FROM THE INSTRUCTOR

A. Course Withdrawal: It is the student’s responsibility to officially withdraw from a course if circumstances prevent attendance. Any student who desires to, or must, officially withdraw from a course after the first scheduled class meeting must file a Central Texas College Application for Withdrawal (CTC Form 59). The student must sign the withdrawal form.

CTC Form 59 will be accepted at any time prior to Friday of the 12th week of classes during the 16-week fall and spring semesters. The deadline for sessions of other lengths is:
- 10-week session Friday of the 8th week
- 8-week session Friday of the 6th week
- 5-week session Friday of the 4th week

The equivalent date (75% of the semester) will be used for sessions of other lengths. The specific last day to withdraw is published each semester in the Schedule Bulletin.

For non-GoArmyEd active military students, the effective date of withdrawal is the filing date with the Education Center. For all other students, the effective date of withdrawal is the date that the withdrawal application is received by the Central Texas College representative.

Students who used financial aid, military tuition assistance, VA benefits, or other non-personal funds may be required to repay tuition and fees to the funding agency. For specific repayment requirements, contact the Office of Student Financial Aid or Veterans Services Office before withdrawing. Military tuition assistance students should visit their military Education Center or Navy College Office.

A student who officially withdrawals will be awarded the grade of “W” provided the student’s attendance and academic performance are satisfactory at the time of official withdrawal. Students must file a withdrawal application with the College before they may be considered for withdrawal.
A student may not withdraw from a class for which the instructor has previously issued a grade of “F,” “FI,” “FN,” “IP,” or “XN.”

B. Instructor Initiated Withdrawals: Faculty are authorized to withdraw students who are not making satisfactory course progress to include failure to meet College attendance requirements as outlined in the section of the Catalog entitled “Satisfactory Progress Standards.” The instructor will assign the appropriate grade on CTC Form 59 for submission to the registrar.

Students enrolled in distance learning courses are expected to maintain constant progress throughout the course. Failure to do so may result in the student being administratively withdrawn by the instructor.

Students who have not attended class by the 12th class day of a 16-week course or the 6th class day of an 8-week term may be administratively withdrawn by the instructor with a grade of "W." Students may also be administratively withdrawn from any class when their absences exceed a total of four class meetings for a 16-week course or three class meetings for less than 16-week courses and; in the opinion of the instructor, the student cannot satisfactorily complete the course. In a distance learning course the last date of attendance is the last activity by the student in the course.

C. Administrative Withdrawal: A student may be administratively withdrawn by a designated member of the administrative staff of the College when the student has been placed on Academic Suspension or Disciplinary Suspension; the student has an outstanding financial obligation owed to the college; or the student registered for a course without the required prerequisite or departmental permission.

The College is under no obligation to refund tuition and fees, or other costs associated with an administrative or instructor initiated withdrawal.

D. Incomplete Grade: The College catalog states, “An incomplete grade may be given in those cases where the student has completed the majority of the coursework but, because of personal illness, death in the immediate family, or military orders, the student is unable to complete the requirements for a course...” Prior approval from the instructor is required before the grade of “IP” for Incomplete is recorded.

E. Cell Phones and Pagers: Students will silence cell phones and mobile devices while in the classroom or lab.

F. Americans with Disabilities Act (ADA): Disability Support Services provide services to students who have appropriate documentation of a disability. Students requiring accommodations for class are responsible for contacting the
Office of Disability Support Services (DSS) located on the central campus. This service is available to all students, regardless of location. Review the website at www.ctcd.edu/disability-support for further information. Reasonable accommodations will be given in accordance with the federal and state laws through the DSS office.

G. Instructor Discretion: The instructor reserves the right of final decision in course requirements and may make changes to the course outline and/or assignments as needed.

H. Civility: Individuals are expected to be aware of what a constructive educational experience is and be respectful of those participating in a learning environment. Failure to do so can result in disciplinary action up to and including expulsion.

I. Degree Progression: Students who receive a grade of “D” are advised not to enroll in the next course for which this course was a prerequisite.

J. Failing Grade: The grade of “F” or “FN” will be given for academic failure, non-attendance or scholastic dishonesty.

K. Scholastic Honesty: All students are expected to maintain the highest standards of scholastic honesty in the preparation of all course work and during examinations. The college policy on scholastic honesty, including definitions on plagiarism, collusion, and cheating can be found at the following URL: http://online.ctcd.edu/plagiarism.cfm
VIII. COURSE OUTLINE

A. Lesson Zero: Introduce course requirements and objectives. Introduce student to the virtual lab and requisite software.

1. Learning Outcomes: Upon successful completion the student will be able to apply course requirements as defined in the syllabus and reviewed by the instructor.

2. Learning Activities:
   a. Read syllabus.
   b. Read and discuss Organization of the Textbook, Preface.
   c. Register and access online virtual laboratory.
   d. Post an introduction/course contract to the online discussion forum.

3. Unit Outline:
   a. Cover and discuss syllabus.
   b. Cover Rules and Requirements for this course.
   c. Cover the projects and due dates.
   d. Introduce students to laboratory equipment.

B. Lesson One:

1. Learning Outcomes: Upon successful completion the student will be able to:
   a. Describe the major features and components of Active Directory
   b. Configure a multidomain environment
   c. Configure a multiforest environment
   d. Describe Active Directory trusts
   e. Configure Active Directory trusts
   f. Upgrade domains and forests

2. Learning Activities:
   a. Participate in collaborative discussions based on the assigned reading materials. (C9,C12,C14,F1, F2, F5, F6)
   b. Complete lab simulations (C18, C19, C20, F8, F9, F11)
   c. Submit assigned exercises. (C5, C6, C8, F1, F2, F7, F9, F11)

3. Unit Outline:
   a. Reviewing Active Directory
   b. Configuring Multidomain Environments
   c. Configuring Multiforest Environments
   d. Active Directory Trusts
   e. Configuring Active Directory Trusts
   f. Upgrading Domains and Forests
C. **Lesson Two:**

1. **Learning Outcomes:** Upon successful completion the student will be able to:
   a. Describe an Active Directory site and its components
   b. Configure Active Directory sites
   c. Manage Active Directory, RODC, and SYSVOL replication

2. **Learning Activities:**
   a. Participate in collaborative discussions based on the assigned reading materials. (C9, C12, C14, F1, F2, F5, F6)
   b. Complete lab simulations (C18, C19, C20, F8, F9, F11)
   c. Submit assigned exercises. (C5, C6, C8, F1, F2, F7, F9, F11)

3. **Unit Outline:**
   a. Understanding Sites
   b. Configuring Sites
   c. Active Directory Replication

D. **Lesson Three:**

1. **Learning Outcomes:** Upon successful completion the student will be able to:
   a. Describe DHCP components and operation
   b. Configure superscopes and multicast scopes
   c. Use DHCPv6
   d. Configure DHCP for high availability
   e. Configure DHCP for DNS registration
   f. Describe the DNS structure and components
   g. Configure DNS security
   h. Configure advanced DNS options

2. **Learning Activities:**
   a. Participate in collaborative discussions based on the assigned reading materials. (C9, C12, C14, F1, F2, F5, F6)
   b. Complete lab simulations (C18, C19, C20, F8, F9, F11)
   c. Submit assigned exercises. (C5, C6, C8, F1, F2, F7, F9, F11)

3. **Unit Outline:**
   a. An Overview of DHCP
   b. Configuring Superscopes and Multicast Scopes
   c. Using DHCPv6
   d. DHCP High Availability
   e. Configuring DHCP for DNS Registration
   f. Overview of DNS
   g. Confirming DNS Security
   h. Configuring Advanced DNS Options
E. Lesson Four:

1. **Learning Outcomes:** Upon successful completion the student will be able to:
   a. Configure advanced file service solutions
   b. Configure advanced file storage solutions
   c. Configure Dynamic Access Control
   d. Configure Internet Protocol Address Management

2. **Learning Activities:**
   a. Participate in collaborative discussions based on the assigned reading materials. (C9,C12,C14,F1, F2, F5, F6)
   b. Complete lab simulations (C18, C19, C20, F8, F9, F11)
   c. Submit assigned exercises. (C5, C6, C8, F1, F2, F7, F9, F11)

3. **Unit Outline:**
   a. Configuring Advanced File Services
   b. Configuring Advanced File Storage
   c. Configuring Dynamic Access Control
   d. Configuring IP Address Management

F. Lesson Five:

1. **Learning Outcomes:** Upon successful completion the student will be able to:
   a. Configure network load balancing
   b. Configure a failover cluster

2. **Learning Activities:**
   a. Participate in collaborative discussions based on the assigned reading materials. (C9,C12,C14,F1, F2, F5, F6)
   b. Complete lab simulations (C18, C19, C20, F8, F9, F11)
   c. Submit assigned exercises. (C5, C6, C8, F1, F2, F7, F9, F11)

3. **Unit Outline:**
   a. Configuring Network Load Balancing
   b. Failover Clusters

G. Lesson Six:

1. **Learning Outcomes:** Upon successful completion the student will be able to:
   a. Configure advanced failover clusters
   b. Configure highly available virtual machines
   c. Configure virtual machine movement
2. **Learning Activities:**
   a. Participate in collaborative discussions based on the assigned reading materials. (C9,C12,C14,F1, F2, F5, F6)
   b. Complete lab simulations (C18, C19, C20, F8, F9, F11)
   c. Submit assigned exercises. (C5, C6, C8, F1, F2, F7, F9, F11)

3. **Unit Outline:**
   a. Advanced Failover Clusters
   b. Configuring Highly Available Virtual Machines
   c. Configuring Virtual Machine Movement

H. **Lesson Seven:**

1. **Learning Outcomes:** Upon successful completion the student will be able to:
   a. Back up Windows servers
   b. Recover Windows servers
   c. Configure online backups
   d. Perform site-level disaster recovery
   e. Configure multisite clustering

2. **Learning Activities:**
   a. Participate in collaborative discussions based on the assigned reading materials. (C9,C12,C14,F1, F2, F5, F6)
   b. Complete lab simulations (C18, C19, C20, F8, F9, F11)
   c. Submit assigned exercises. (C5, C6, C8, F1, F2, F7, F9, F11)

3. **Unit Outline:**
   a. Backing Up Windows Servers
   b. Windows Server Recovery
   c. Configuring Online Backups
   d. Site Level Disaster Recovery
   e. Configuring Multisite Clustering

I. **Lesson Eight:**

1. **Learning Outcomes:** Upon successful completion the student will be able to:
   a. Describe the components of a PKI system
   b. Deploy the Active Directory Certificate Services role
   c. Configure a certification authority
   d. Maintain and manage a PKI
   e. Install and configure Active Directory Federation Services
   f. Install and configure Active Directory Rights Management Services
2. **Learning Activities:**
   a. Participate in collaborative discussions based on the assigned reading materials. (C9, C12, C14, F1, F2, F5, F6)
   b. Complete lab simulations (C18, C19, C20, F8, F9, F11)
   c. Submit assigned exercises. (C5, C6, C8, F1, F2, F7, F9, F11)

3. **Unit Outline:**
   a. Introducing Active Directory Certificate Services
   b. Deploying the Active Directory Certificate Services Role
   c. Configuring a Certification Authority
   d. Maintaining and Managing a PKI
   e. Active Directory Federation Services
   f. Active Directory Rights Management Service