GREENVILLE TECHNICAL COLLEGE

School of Business and Computer Technology
Computer Technology
Course Syllabus
Linux Systems Administration IST 191
Fall 2019

Credit/Contact Hours:
3.0

Prerequisite:
 IST 190. Computer Technology students must obtain a minimum grade of "C" in all CPT and IST courses.

Co-requisite:
None

Course Description:

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This course will provide students with the skills necessary to manage Linux servers including installation, automated installation, using regular expression, managing future tasks, managing users and groups, managing Linux storage systems, securing a Linux server with ACLs, SELinux, and firewalld. Students will learn how to administer the core network services in a Linux system, such as Apache Web Server, Samba File Server, Postfix email server, and other network services.

Purpose of Course:
Students will learn skills necessary to manage Linux servers including installation, automated installation, using regular expression, managing future tasks, managing users and groups, managing Linux storage systems, securing a Linux server with ACLs, SELinux, and firewalld. Students will also learn how to administer the core network services in a Linux system, such as Apache Web Server, Samba File Server, Postfix email server, and other network services.

Please refer to Syllabus Addendum in Blackboard to review the Tentative Course Schedule. Your instructor will provide a detailed, week-by-week plan of instruction along with method of delivery, testing, and assignment submission.

COURSE OUTLINE (Units)

1. Automating Installation with Kickstart

   - Defining the Anaconda Kickstart System

   - Deploying a New Virtual System with Kickstart

2. Using Regular Expressions with grep

   - Regular Expressions Fundamentals

   - Matching Text with grep

3. Creating and Editing Text Files with vim

   - The vim Text Editor

   - Basic vim Workflow

   - Editing with vim

4. Scheduling Future Linux Tasks

   - Scheduling One-Time Tasks with the at daemon

   - Scheduling Recurring Jobs with the cron daemon

   - Scheduling System cron Jobs

   - Managing Temporary Files

5. Managing Priority of Linux Processes

   - Process Priority and "nice" Concepts

- Using nice and renice to Influence Process Priority

6. Controlling Access to Files with Access Control Lists (ACLs)

- POSIX Access Control Lists (ACLs)
- Securing Files with ACLs

7. Managing SELinux Security

- Enabling and Monitoring Security Enhanced Linux (SELinux)
- Changing SELinux Modes
- Changing SELinux Contexts
- Changing SELinux Booleans
- Troubleshooting SELinux

8. Connecting to Network-defined Users and Groups

- Using Identity Management Services

9. Adding Disks, Partitions, and File Systems to a Linux System

- Adding Partitions, File Systems, and Persistent Mounts
- Managing Swap Space

10. Managing Logical Volume Management (LVM) Storage

- Logical Volume Management Concepts
- Managing Logical Volumes
- Extending Logical Volumes

11. Accessing Network Storage with Network File System (NFS)

- Storage with NFS
- Automounting Network Storage with NFS

12. Accessing Network Storage with SMB

- Install, configure, and administer Samba (SMB File Server)
- Accessing Network Storage with SMB

13. Controlling and Troubleshooting the RHEL Boot Process

- The Red Hat Enterprise Linux Boot Process
- Repairing Common Boot Issues
- Repairing File System Issues at Boot
- Repairing Boot Loader Issues

14. Limiting Network Communication with firewalld

- Limiting Network Communication

15. Additional Topics

- Administer Linux users and groups
- Install, configure, and administer Apache Web Server
- Install, configure, and administer Samba (SMB File Server)
- Install, configure, and administer Postfix E-mail Server

The instructor reserves the right to modify the Plan of Instruction by changing the sequence of text material or testing content.

The final examination for traditional, online, hybrid, and blended class students will be administered on the Barton Campus. The final examination will be scheduled at a time determined by the administration.

Revised August 2018

Required Texts:
1. RHCSA/RHCE Red Hat® Linux® Certification Study Guide, Seventh Edition (Exams EX200 & EX300)
- Michael Jang and Alessandro Orsaria
- Copyright © 2016 by McGraw Hill Education
- ISBN: 978-0-07-184196-2 (book with DVD)

2. The CPT Department at Greenville Technical College is a member of the Red Hat Academy. The curriculum content for IST 191 will be delivered online via the Red Hat Academy. Students in IST 191 will be given access to the online curriculum. Internet access is required for a student in IST 191 to complete this course. There are no other required textbooks. The Red Hat Academy is online at https://rhlearn.gilmore.ca.

3. NOTE: Students in traditional classes must access Blackboard for course-related information. Students in hybrid and online classes will access their online content through Blackboard.

Additional Materials, Supplies, Equipment, and Technology (i.e. Webcams):
Click here to enter text.

Instructional Agreement:
This syllabus is an agreement between the student and instructor concerning course objectives, course content, grading, and other policies and procedures particular to the course as well as any posted program, departmental, and divisional policies. It is also the student's responsibility to become familiar with the Student Handbook/College Catalog found in the Student Resources area of Blackboard.

Grading Scale:
Weighted Percentages:

Grades for this course will be calculated as follows:

Unit Tests   35 percent

Assignments   15 percent

Labs   20 percent

Final Exam   30 percent

Written Final Exam 35% and Hands-On Lab Final Exam 65%

Final letter grades will be issued as follows:

A	=	90 - 100
B	=	80 - 89
C	=	70 - 79
D	=	60 - 69
F	=	0 - 59

Revised August 2018

Pass/Non-Pass Course Grade Option:
This course may be eligible for the Pass/Non-Pass Course Grade Option. A student must request this option prior to the withdrawal date of this course. If approved for this option, a grade of P will be assigned if the student earns a grade of C or higher. A grade of NP will be assigned for earning a D or F. Students are encouraged to talk with their instructor and meet with an advisor prior to requesting this option. Additional information may be found in the college catalog.

Instructional Continuity:
In the event of a disruption to the normal class schedule or planned activities for this course, alternate learning activities that may include other methods of instruction or locations may be implemented. If disruption occurs, your instructor will communicate through your GTC email (Gmail) account. Additionally, please make sure your contact information is accurate in GTC's emergency alert system (accessible in GTC4Me/Quick Access/GTC2me – Emergency Messaging).

Verification of Student in Online Classes:
Greenville Technical College is committed to student learning and the academic integrity of all courses. All GTC online courses are required to have at least one proctored learning activity that constitutes a significant percentage of the course grade, which may include a test, midterm, final exam, presentation or other assignment. Proctored is defined as an experience where an approved person ensures the identity of the student and monitors the learning activity. The proctored learning activity will be determined by the course instructor. The method of proctoring and any additional requirements, such as costs for students and/or trips to campus or approved testing center, will be explained in the course schedule/plan of instruction.

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Course Outcomes:
Students who successfully complete this course will have demonstrated the skills required to accomplish the following objectives with a minimum competence level of 70 percent.

1. Administer Linux users and groups.

2. Install, configure, and administer Apache Web Server.

3. Install, configure, and administer Samba (SMB File Server).

4. Install, configure, and administer Postfix E-mail Server.

5. Manage and secure a Linux server using basic administrative skills, network applications, and open source tools.

Revised June 2016

Assessment of Student Learning:
Greenville Technical College is committed to continuous improvement of teaching and learning. Tests, assignments, and/or projects required in this course may be shared with college faculty and used for assessment purposes. Also, student input is necessary for improving instruction and is requested through course evaluations. Students will be notified when evaluations are available.

Administrative Withdrawals:
Students may be administratively withdrawn from this course for the following reasons:

- Not attending a course during the drop/add period including failure to meet the attendance criteria in an online course. In this case, a grade of WA will be assigned. This WA will not count as an attempt and will not affect GPA.
- For recorded absences exceeding 15% of the course contact hours prior to the withdrawal date. A grade of W will be assigned. For students who receive financial aid, this W will count as a course attempt but will not affect GPA.
- For non-attendance for 14 consecutive calendar days during any time in a semester (including non-class days, holidays, and weekends). A grade of FA (Failure due to Absences) will be assigned. For students who receive financial aid, this FA will count as a course attempt and will affect GPA. The college will use a grade point of zero for each credit hour to calculate the student's GPA.

Course Policies:
Computer Technology students must obtain a minimum grade of "C" in all CPT and IST courses.

Please refer to Departmental Polices in Blackboard to review additional course and department policies.

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Students with Disabilities:
Students with disabilities, including those who were served in Special Education (resource or tutorial), should contact Student Disability Services (SDS) to discuss their need for services and accommodations. ***This must be done each term***. The main SDS office is located on the Barton Campus in the Student Center Building 105, office 113.

Students may reach staff by phone at (864) 250-8202 or via email to DisabilityServices@gvltec.edu. Appointments are available at all satellite campus locations. Please check the GTC website for more information concerning Student Disability Services. Visit http://gvltec.edu/disability-services for more information.

The college is committed to providing materials that are accessible to all students. However, if you experience any difficulty accessing materials, please notify your instructor immediately so that we can provide a solution. You may also contact Student Disability Services directly at (864) 250-8202 or by email at DisabilityServices@gvltec.edu.

Students who need a PDF reader to access course documents presented in PDF formats may download Adobe Reader from https://get.adobe.com/reader.

Blackboard Ally

Blackboard Ally is a tool to improve students' experiences within online courses. It enables students to convert files in a course to more accessible formats such as HTML, electronic braille, audio and more. For more information, refer to Blackboard Ally for Students located in Student Resources in the course menu.

Technology Statement:
Greenville Technical College is not responsible for personal technology or internet access. Problems with computers, devices, or internet access are not acceptable for late work. When completing gradable coursework online, be sure to access a secure, reliable internet connection (preferably hardwired).

All technical questions should be directed to technical support. For details, visit https://www.gvltec.edu/about_greenvilletech/tech_support.

Students can access due dates for all assignments and quizzes/tests on the Course Schedule/Plan of Instruction. All graded work is time-stamped when submitted, so your instructor can check the time of submission. In addition, you will receive a confirmation email message when you submit assignments via Blackboard. You must provide this confirmation information in case of any dispute regarding the submission.

Computer labs are available at multiple campus locations and offer various hours as well as staff who are available for assistance. For more information, please visit https://www.gvltec.edu/student_resources/computer_labs.

Student should use Microsoft Office programs or PDF format for submitting assignments in Blackboard. Students can access http://portal.office.com, log in with their <username>@my.gvltec.edu email address and Blackboard/GTC4me password, then follow the prompts to install Microsoft Office free of charge.

Starfish:
We care about your success! Greenville Technical College is proud to offer Starfish, a software tool designed to promote student success through coordination and communication between students, instructors, and support staff. The link to Starfish is located in Blackboard.

Inside Starfish, you will find your Student Success Team with your instructor, advisor, academic coach, and others you may be directly connected with at the college. Setting up your Starfish profile and completing the Starfish Intake form will provide your Success Team with valuable information to guide your success.

Throughout the semester, you may receive emails regarding your attendance, academic performance, or course grades. Additionally, faculty and staff may send kudos celebrating successes. It is important that you check your Greenville Technical College Gmail regularly for Starfish alerts and kudos.

FERPA Policy:
Because Greenville Technical College abides by FERPA privacy guidelines, personal email accounts may not be used for any College-related communication. Faculty and students must use the college Gmail system only.

Start, Stay, Succeed!