



The following table contains the groups and the projects associated to each group. The groups remain the same as those of the practical CA.

Carefully read the instructions and information notes at the end of this document.

GROUPS	PROJECTS
GROUP 1	<p>Title: Automating System Tasks: A Scripting Project for Efficiency.</p> <ul style="list-style-type: none">• Introduction to scripting languages (e.g., Bash, PowerShell)• Automation of routine tasks• Scripting for system maintenance and monitoring• Testing and optimizing scripts for efficiency
GROUP 2	<p>Title: Comparative Analysis of Linux and Windows Server Configurations.</p> <ul style="list-style-type: none">• Evaluation criteria for server configurations• In-depth analysis of Linux and Windows server settings• Performance benchmarking• Recommendations for specific use cases
GROUP 3	<p>Title: Windows system administration: an application to Windows Server</p> <ul style="list-style-type: none">• User and Group Management• File System and Disk Management• Active Directory and Domain Services• Group Policy Management
GROUP 4	<p>Title: Hardening Operating Systems: Best Practices in System Security.</p> <ul style="list-style-type: none">• Common vulnerabilities and threats• Implementing security best practices for operating systems• Configuration hardening techniques• Evaluation of security measures
GROUP 5	<p>Title: Disaster Recovery Planning and Implementation for IT Systems.</p> <ul style="list-style-type: none">• Importance of disaster recovery planning• Risk assessment and mitigation strategies• Creating and testing a disaster recovery plan• Case study on a real or simulated disaster recovery scenario
GROUP 6	<p>Title: Implementing and managing a DevOps Pipeline for System Administrators.</p> <ul style="list-style-type: none">• Introduction to DevOps principles• Setting up a continuous integration/continuous deployment (CI/CD) pipeline

	<ul style="list-style-type: none"> Automation of deployment and testing processes Monitoring and feedback loops in DevOps
GROUP 7	<p>Title: Wireless Network Security: Threats and Countermeasures.</p> <ul style="list-style-type: none"> Overview of wireless security protocols Common wireless network threats Encryption and authentication methods Securing wireless access points and networks
GROUP 8	<p>Title: Database Administration Essentials for System Administrators.</p> <ul style="list-style-type: none"> Introduction to database management systems Database installation and configuration Performance tuning and optimization Backup and recovery strategies
GROUP 9	<p>Title: Web Server Optimization and Performance Tuning.</p> <ul style="list-style-type: none"> Configuring and optimizing web servers (e.g., Apache, Nginx) Load balancing and caching strategies Monitoring and analysing web server performance. Implementing Content Delivery Networks (CDN)
GROUP 10	<p>Title: Design and Implementation of a Secure Network Infrastructure:</p> <ul style="list-style-type: none"> Overview of network security principles Designing a secure network architecture Implementation of firewalls, intrusion detection/prevention systems Demonstrating secure communication protocols
GROUP 11	<p>Title: Troubleshooting and Debugging in System Administration.</p> <ul style="list-style-type: none"> Methodologies for troubleshooting IT issues Diagnostic tools and techniques Case studies on common system administration problems Best practices for effective troubleshooting
GROUP 12	<p>Title: Implementing Multi-factor Authentication in Enterprise Environments.</p> <ul style="list-style-type: none"> Introduction to multi-factor authentication (MFA) Implementing MFA for various systems and services User authentication workflows Security implications and benefits
GROUP 13	<p>Title: Cloud Migration Strategies for Legacy Systems.</p> <ul style="list-style-type: none"> Assessment of legacy systems for cloud migration Choosing the right cloud service model (IaaS, PaaS, SaaS) Data migration strategies and challenges Post-migration monitoring and optimization
GROUP 14	<p>Title: Securing Virtual Environments: Challenges and Solutions</p> <ul style="list-style-type: none"> Security considerations in virtualized environments Hypervisor security and isolation Securing virtual networks and storage Auditing and monitoring in virtual environments

Instructions:

- Each project should have a theoretical and a practical application related to system administration.
- The point listed above are just for orientations. I expect precise, concise, and most importantly, more than just the listed points.
- The deadline for giving back the printed word document and the powerpoint presentation is **Thursday the 4th of January 2024** at **10 am** to the class delegate.
- The projects will be defended on the **5th and 6th of January 2024** at our habitual time frames.
- Groups 1 to 7 will present on Friday the 5th from 9 am to 11 while groups 8 to 14 will present on Saturday the 6th from 11 am to 1pm.

NB:

- 1) There will not be any catchup presentation.
- 2) People absent during their group presentation will have ZERO (0)/40 on the projects part.
- 3) Each Group will have 10 minutes for their presentation and 5 minutes for answering questions.

Important Information:

I decided what follows:

- CEF 473 System administration is finally a Lab course. As a result, there will not be a written examination for the course.
- You will be evaluated as follows:
 - **Presence: 10 marks**
 - **Written CA: 20 marks**
 - **Practical CA: 30 marks**
 - **Projects: 40 marks**

The marks compilation will be made as follows.

- **Written CA+ Presence = CA marks /30 marks**
- **Practical CA+ projects = Exam marks /70 marks**