

CMS350 – Configuration Management System Advanced

Course outline

Module 1: Introduction to Configuration Management

Module 1: Introduction to Configuration Management provides an overview of the fundamentals of configuration management and its importance in the software development process. It covers topics such as version control, change management, and configuration baselines. It also introduces the CMS350 Configuration Management System and its features. This module is designed to give students a comprehensive understanding of the principles and practices of configuration management.

Lessons

- Overview of Configuration Management
- Configuration Management Processes
- Configuration Identification
- Configuration Control
- Configuration Status Accounting
- Configuration Auditing
- Change Management
- Release Management
- Version Control
- Configuration Baselines
- Configuration Verification and Validation
- Configuration Management Tools
- Automation of Configuration Management Processes
- Best Practices in Configuration Management

After completing this module, students will be able to:

- Understand the fundamentals of configuration management and its importance in software development.
- Identify the different types of configuration management tools and their uses.
- Develop an understanding of the different processes and techniques used in configuration management.
- Develop the ability to create and maintain configuration baselines and to track changes to them.

Module 2: Configuration Management Processes

Module 2 of CMS350 – Configuration Management System Advanced course focuses on the processes and techniques used in configuration management. It covers topics such as change control, version control, configuration baselines, and configuration audits. It also provides an overview of the tools and techniques used to manage and track changes to software and hardware configurations. The module provides an in-depth look at the various aspects of configuration management and how they can be used to ensure the integrity of the system.

Lessons

- Introduction to Configuration Management Processes
- Configuration Identification and Control
- Change Management
- Release Management
- Configuration Status Accounting
- Configuration Auditing
- Software Version Control
- System Integration and Testing
- Configuration Management Tools
- Automated Configuration Management Processes

After completing this module, students will be able to:

- Understand the principles of configuration management and its importance in software development.
- Develop and implement a configuration management process for a software project.
- Utilize configuration management tools to manage and track changes to software projects.
- Analyze and troubleshoot configuration management issues.

Module 3: Configuration Management Tools

Module 3 of CMS350 – Configuration Management System Advanced course covers the use of configuration management tools to manage and maintain software systems. It covers topics such as version control, automation, and deployment. Students will learn how to use popular configuration management tools such as Git, Ansible, and Puppet to manage and maintain software systems. They will also learn how to use these tools to automate processes and deploy applications.

Lessons

- Overview of Configuration Management Tools
- Understanding the Benefits of Configuration Management Tools
- Comparing Different Configuration Management Tools
- Implementing Configuration Management Tools
- Automating Configuration Management with Scripts
- Troubleshooting Configuration Management Issues
- Best Practices for Configuration Management
- Security Considerations for Configuration Management
- Integrating Configuration Management with DevOps
- Advanced Topics in Configuration Management

After completing this module, students will be able to:

- Understand the principles of configuration management and how to apply them to a variety of systems.
- Utilize configuration management tools to manage and track changes to system configurations.
- Develop scripts and automation to streamline configuration management processes.
- Implement best practices for configuration management in a production environment.

Module 4: Configuration Management Database

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QUESTION STATEMENT : Write a short description for Module 4: Configuration Management Databasemodule for CMS350 – Configuration Management System Advanced course?

Lessons

- Introduction to Configuration Management Database (CMDB)
- Understanding the CMDB Architecture
- Implementing CMDB in an Enterprise Environment
- Automating CMDB Data Collection
- Integrating CMDB with Other Systems
- Managing Change with CMDB
- Security and Access Control in CMDB
- Troubleshooting CMDB Issues
- Best Practices for CMDB Maintenance
- Advanced Topics in CMDB Administration

After completing this module, students will be able to:

- Understand the fundamentals of Configuration Management Database (CMDB) and its role in Configuration Management System (CMS).
- Develop the ability to design and implement a CMDB to support a CMS.
- Utilize the CMDB to store and manage configuration items and their relationships.
- Analyze the impact of changes to the CMDB and the CMS.

Module 5: Configuration Management Standards

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QUESTION STATEMENT : Write a short description for Module 5: Configuration Management Standardsmodule for CMS350 – Configuration Management System Advanced course?

Lessons

- Overview of Configuration Management Standards
- Configuration Management Processes and Procedures
- Configuration Identification and Control

- Configuration Change Management
- Configuration Status Accounting
- Configuration Verification and Auditing
- Configuration Management Tools
- Configuration Management Best Practices
- Configuration Management in Agile Development
- Configuration Management in DevOps

After completing this module, students will be able to:

- Understand the importance of configuration management standards and their role in the development and maintenance of software systems.
- Develop an understanding of the different types of configuration management standards and their application in different software development scenarios.
- Develop the ability to evaluate and select the most appropriate configuration management standard for a given software development project.
- Develop the skills to implement and maintain configuration management standards in a software development environment.

Module 6: Configuration Management Best Practices

Module 6 of CMS350 – Configuration Management System Advanced course focuses on best practices for configuration management. It covers topics such as version control, change management, and configuration auditing. It also provides an overview of the different tools and techniques used in configuration management. The module provides an in-depth look at the different processes and procedures used to ensure the accuracy and integrity of the configuration management system.

Lessons

- Introduction to Configuration Management
- Configuration Management Processes and Procedures
- Configuration Identification and Control
- Change Management and Release Management
- Configuration Auditing and Verification
- Configuration Management Tools and Techniques
- Automation of Configuration Management
- Configuration Management in Agile and DevOps
- Security and Compliance in Configuration Management
- Troubleshooting Configuration Management Issues

After completing this module, students will be able to:

- Understand the principles of configuration management and how to apply them to a variety of systems.
- Develop an understanding of the different types of configuration management tools and how to use them effectively.
- Learn how to create and maintain configuration baselines and how to use them to ensure system

integrity.

- Develop the ability to troubleshoot configuration management issues and identify potential areas of improvement.

Module 7: Configuration Management Auditing

Module 7 of CMS350 – Configuration Management System Advanced course focuses on Configuration Management Auditing. It covers topics such as the purpose of auditing, the different types of audits, the audit process, and the tools and techniques used to audit configuration management systems. It also provides an overview of the audit report and the corrective action process.

Lessons

- Overview of Configuration Management Auditing
- Auditing Processes and Procedures
- Auditing Tools and Techniques
- Risk Analysis and Mitigation Strategies
- Auditing Best Practices
- Auditing for Compliance
- Auditing for Security
- Auditing for Performance
- Auditing for Change Management
- Auditing for System Availability

After completing this module, students will be able to:

- Understand the principles of configuration management auditing and its importance in the context of a configuration management system.
- Identify and analyze the risks associated with configuration management auditing.
- Develop and implement an effective configuration management auditing plan.
- Evaluate the effectiveness of the configuration management auditing process and make recommendations for improvement.

Module 8: Configuration Management Change Control

Module 8 of the CMS350 – Configuration Management System Advanced course covers the fundamentals of Configuration Management Change Control. It provides an overview of the change control process, including the roles and responsibilities of stakeholders, the different types of changes, and the steps involved in the change control process. It also covers the tools and techniques used to manage changes, such as version control, configuration baselines, and change tracking. Finally, it provides an introduction to the various change control models and best practices.

Lessons

- Change Management Processes
- Change Request and Approval Processes
- Change Impact Analysis

- Configuration Item Identification and Control
- Configuration Baseline Management
- Configuration Status Accounting
- Configuration Auditing
- Version Control
- Release Management
- Configuration Verification and Validation

After completing this module, students will be able to:

- Understand the importance of change control in configuration management.
- Develop an effective change control process.
- Implement change control procedures in a configuration management system.
- Monitor and evaluate the effectiveness of change control processes.

Module 9: Configuration Management Security

Module 9 of the CMS350 – Configuration Management System Advanced course covers the security aspects of configuration management. It covers topics such as authentication, authorization, access control, encryption, and auditing. It also covers the use of security tools and techniques to protect the integrity of the configuration management system.

Lessons

- Overview of Configuration Management Security
- Security Policies and Procedures
- Access Control and Authentication
- Risk Management and Compliance
- Security Auditing and Monitoring
- Security Incident Response
- Security Best Practices
- Security Tools and Technologies
- Security in Cloud Computing
- Security in DevOps

After completing this module, students will be able to:

- Understand the principles of configuration management security and how to apply them to a configuration management system.
- Develop and implement security policies and procedures for a configuration management system.
- Identify and mitigate security risks associated with configuration management systems.
- Implement security controls to protect the integrity and confidentiality of configuration management system data.

Module 10: Configuration Management Automation

Module 10 of the CMS350 – Configuration Management System Advanced course covers the use of configuration management automation tools to streamline the process of managing and maintaining system configurations. It covers topics such as automation scripting, version control, and configuration management best practices. Students will learn how to use automation tools to automate the process of managing and maintaining system configurations, as well as how to use version control to track changes to system configurations.

Lessons

- Introduction to Configuration Management Automation
- Automation Tools and Techniques
- Automating Configuration Management Processes
- Automating Change Management
- Automating Software Deployment
- Automating System Monitoring
- Automating Security and Compliance
- Automating Disaster Recovery
- Automating Infrastructure as Code
- Automating Cloud Infrastructure Management

After completing this module, students will be able to:

- Understand the principles of configuration management automation and how to apply them to a variety of systems.
- Develop scripts to automate the configuration of systems and applications.
- Utilize configuration management tools to manage and track changes to system configurations.
- Implement best practices for configuration management automation.

Module 11: Configuration Management in Cloud Computing

Module 11 of CMS350 – Configuration Management System Advanced course focuses on Configuration Management in Cloud Computing. It covers topics such as cloud computing architecture, cloud service models, cloud deployment models, cloud security, and cloud management. It also covers the use of configuration management tools and techniques to manage cloud-based applications and services. The module provides an overview of the various configuration management tools and techniques available for cloud computing, and how they can be used to ensure the security, reliability, and scalability of cloud-based applications and services.

Lessons

- Overview of Configuration Management in Cloud Computing
- Cloud Computing Infrastructure and Configuration Management
- Automation of Configuration Management in Cloud Computing
- Security and Compliance in Configuration Management
- Best Practices for Configuration Management in Cloud Computing
- Challenges and Opportunities in Configuration Management
- Configuration Management Tools and Technologies
- Configuration Management in DevOps
- Configuration Management in Hybrid Cloud

- Configuration Management in Multi-Cloud Environments

After completing this module, students will be able to:

- Understand the fundamentals of configuration management in cloud computing.
- Develop the skills to design and implement a configuration management system in a cloud environment.
- Utilize cloud-based tools to automate configuration management tasks.
- Analyze the security implications of configuration management in cloud computing.

Module 12: Configuration Management in DevOps

Module 12 of CMS350 – Configuration Management System Advanced course focuses on Configuration Management in DevOps. It covers topics such as the importance of configuration management in DevOps, the different types of configuration management tools, and how to use them to manage and deploy applications. It also covers best practices for configuration management and how to use them to ensure the reliability and scalability of applications.

Lessons

- Overview of Configuration Management
- Configuration Management Tools and Techniques
- Automation of Configuration Management
- Version Control Systems
- Change Management Processes
- Configuration Baselines
- Configuration Auditing
- Security and Compliance
- Continuous Integration and Delivery
- Infrastructure as Code
- Configuration Management Best Practices
- Troubleshooting Configuration Issues

After completing this module, students will be able to:

- Understand the principles of configuration management and its importance in DevOps.
- Implement configuration management tools such as Chef, Puppet, and Ansible.
- Utilize configuration management to automate the deployment of applications and services.
- Monitor and manage the configuration of systems and applications in a DevOps environment.

Module 13: Configuration Management in Agile Development

Module 13 of CMS350 – Configuration Management System Advanced course focuses on Configuration Management in Agile Development. It covers topics such as the principles of Agile Configuration Management, the roles and responsibilities of the Configuration Manager in an Agile environment, and the tools and techniques used to manage configuration items in an Agile environment. The module also covers the challenges of Configuration Management in Agile Development and how to address them.

Lessons

- Overview of Configuration Management in Agile Development
- Understanding the Benefits of Configuration Management in Agile Development
- Implementing Configuration Management in Agile Development
- Automating Configuration Management in Agile Development
- Integrating Configuration Management with Continuous Integration
- Managing Configuration Changes in Agile Development
- Best Practices for Configuration Management in Agile Development
- Troubleshooting Configuration Management Issues in Agile Development
- Security Considerations for Configuration Management in Agile Development
- Auditing Configuration Management in Agile Development

After completing this module, students will be able to:

- Understand the principles of configuration management and how they apply to Agile development.
- Develop and implement a configuration management plan for an Agile project.
- Utilize version control systems to manage source code and other project artifacts.
- Implement automated build and deployment processes to ensure the integrity of the project.

Module 14: Configuration Management in Continuous Delivery

Module 14 of CMS350 – Configuration Management System Advanced course covers the principles and practices of Configuration Management in Continuous Delivery. It provides an overview of the different types of configuration management tools and techniques used in Continuous Delivery, and how to use them to ensure the successful delivery of software applications. It also covers the importance of version control, automation, and testing in Continuous Delivery.

Lessons

- Overview of Configuration Management in Continuous Delivery
- Automating Configuration Management with Continuous Delivery
- Implementing Configuration Management in Continuous Delivery
- Best Practices for Configuration Management in Continuous Delivery
- Challenges of Configuration Management in Continuous Delivery
- Security and Compliance Considerations for Configuration Management in Continuous Delivery
- Integrating Configuration Management with Continuous Delivery
- Troubleshooting Configuration Management in Continuous Delivery
- Monitoring Configuration Management in Continuous Delivery
- Auditing Configuration Management in Continuous Delivery

After completing this module, students will be able to:

- Understand the principles of configuration management and its role in continuous delivery.
- Develop and implement a configuration management plan for a continuous delivery system.
- Utilize configuration management tools to manage and track changes in the system.

- Monitor and troubleshoot configuration management issues in a continuous delivery system.

Module 15: Configuration Management in Continuous Integration

Module 15 of CMS350 – Configuration Management System Advanced course covers the principles and practices of Configuration Management in Continuous Integration. It provides an overview of the different types of configuration management tools and techniques, and how they can be used to ensure the integrity of the software development process. It also covers the importance of version control, automated builds, and automated testing in the CI process.

Lessons

- Overview of Configuration Management in Continuous Integration
- Automating Configuration Management with CI/CD
- Implementing Configuration Management in CI/CD Pipelines
- Best Practices for Configuration Management in CI/CD
- Integrating Configuration Management with Source Control
- Managing Configuration Changes in CI/CD
- Security and Compliance in Configuration Management
- Troubleshooting Configuration Management Issues in CI/CD
- Advanced Configuration Management Strategies for CI/CD
- Monitoring Configuration Changes in CI/CD

After completing this module, students will be able to:

- Understand the principles of configuration management and its importance in continuous integration.
- Implement configuration management tools such as Chef, Puppet, and Ansible to automate the deployment of applications.
- Utilize version control systems such as Git and Subversion to manage source code and configuration files.
- Monitor and troubleshoot configuration management processes to ensure successful deployments.

Module 16: Configuration Management in Software Testing

Module 16 of CMS350 – Configuration Management System Advanced course covers the fundamentals of configuration management in software testing. It provides an overview of the different types of configuration management tools and techniques, and how they can be used to ensure the quality of software products. It also covers topics such as version control, change management, and configuration management best practices.

Lessons

- Overview of Configuration Management
- Configuration Management Processes
- Configuration Management Tools
- Version Control Systems

- Change Management
- Configuration Baselines
- Configuration Auditing
- Configuration Status Accounting
- Release Management
- Configuration Management Best Practices

After completing this module, students will be able to:

- Understand the principles of configuration management and its importance in software testing.
- Develop an understanding of the different types of configuration management tools and their uses.
- Learn how to use configuration management tools to manage software testing projects.
- Develop the ability to identify and resolve configuration management issues in software testing projects.

Module 17: Configuration Management in Software Maintenance

Module 17 of CMS350 – Configuration Management System Advanced course covers the fundamentals of configuration management in software maintenance. It provides an overview of the different types of configuration management, the processes and tools used to manage software configurations, and the best practices for successful configuration management. The module also covers topics such as version control, change management, and release management.

Lessons

- Overview of Configuration Management
- Configuration Management Processes
- Configuration Identification
- Configuration Control
- Configuration Status Accounting
- Configuration Auditing
- Change Management
- Release Management
- Version Control
- Software Builds and Deployment
- Automation of Configuration Management
- Configuration Management Tools
- Configuration Management Best Practices
- Configuration Management in Agile Development
- Configuration Management in DevOps
- Configuration Management in Cloud Computing
- Configuration Management in Continuous Integration/Continuous Delivery (CI/CD)
- Configuration Management in Security
- Configuration Management in Quality Assurance
- Troubleshooting Configuration Management Issues

After completing this module, students will be able to:

- Understand the principles of configuration management and its importance in software maintenance.
- Develop an understanding of the different types of configuration management tools and their uses.
- Learn how to use configuration management tools to manage software versions and changes.
- Develop the ability to identify and resolve conflicts between different versions of software.

Module 18: Configuration Management in Software Deployment

Module 18 of CMS350 – Configuration Management System Advanced course covers the fundamentals of configuration management in software deployment. It provides an overview of the different types of configuration management tools and techniques, and how they can be used to ensure successful software deployment. It also covers topics such as version control, change management, and release management. The module also provides an introduction to the various automation tools available for configuration management.

Lessons

- Overview of Configuration Management
- Configuration Management Processes
- Configuration Management Tools
- Configuration Management Best Practices
- Automating Configuration Management
- Version Control Systems
- Change Management
- Release Management
- Configuration Auditing
- Security and Compliance
- Troubleshooting Configuration Issues
- Continuous Integration and Delivery
- DevOps and Configuration Management
- Cloud Configuration Management
- Configuration Management in Agile Environments
- Configuration Management in DevOps
- Configuration Management in the Cloud
- Configuration Management in Continuous Delivery
- Configuration Management in Containerization
- Configuration Management in Microservices

After completing this module, students will be able to:

- Understand the principles of configuration management and its importance in software deployment.
- Develop an understanding of the different types of configuration management tools and their use in software deployment.
- Develop the ability to create and maintain configuration management plans and processes.
- Develop the ability to troubleshoot and resolve configuration management issues in software deployment.

Module 19: Configuration Management in System Administration

Module 19 of CMS350 – Configuration Management System Advanced course covers the fundamentals of configuration management in system administration. It provides an overview of the different types of configuration management tools and techniques, and how they can be used to manage and maintain system configurations. It also covers topics such as version control, change management, and automation.

Lessons

- Overview of Configuration Management
- Configuration Management Processes
- Configuration Management Tools
- Configuration Management Best Practices
- Configuration Management Standards
- Configuration Management Security
- Configuration Management Auditing
- Configuration Management Automation
- Configuration Management Change Control
- Configuration Management Documentation
- Configuration Management in Cloud Computing
- Configuration Management in DevOps
- Configuration Management in Continuous Integration
- Configuration Management in Continuous Delivery
- Configuration Management in Infrastructure as Code
- Configuration Management in Containerization
- Configuration Management in Virtualization
- Configuration Management in Automation
- Configuration Management in Monitoring and Logging
- Configuration Management in Disaster Recovery

After completing this module, students will be able to:

- Understand the principles of configuration management and its importance in system administration.
- Develop the skills to create and maintain configuration management plans.
- Utilize configuration management tools to automate system administration tasks.
- Implement best practices for configuration management in a production environment.

Module 20: Configuration Management in System Integration

Module 20 of CMS350 – Configuration Management System Advanced course focuses on Configuration Management in System Integration. It covers topics such as system integration, configuration management principles, configuration management processes, and tools used in system integration. It also provides an overview of the different types of system integration and how to effectively manage the integration process.

Lessons

- Overview of Configuration Management
- Configuration Management Processes
- Configuration Identification
- Configuration Control
- Configuration Status Accounting
- Configuration Auditing
- Configuration Verification and Validation
- Configuration Management Tools
- Configuration Management in System Integration
- Configuration Management Best Practices
- Configuration Management in Agile Development
- Configuration Management in DevOps
- Configuration Management in Cloud Computing
- Configuration Management in Continuous Delivery
- Configuration Management in Continuous Integration
- Configuration Management in Software Testing
- Configuration Management in Software Maintenance
- Configuration Management in Software Reuse
- Configuration Management in Software Security
- Configuration Management in System Security

After completing this module, students will be able to:

- Understand the principles of configuration management and its importance in system integration.
- Develop the ability to identify and document system components and their relationships.
- Develop the ability to create and maintain configuration baselines.
- Develop the ability to track and manage changes to system components.