Zusammenfassung Modul 324

## Page 1: Introduction and Fundamentals

### Course Overview

The course covers DevOps principles, tools, and practices with a focus on practical implementation. The main components include AWS services, Jenkins pipelines, and container management.

### DevOps Fundamentals

- Understanding DevOps concepts and benefits

- Working with AWS EC2 instances

- Setting up and managing Amazon Machine Images (AMI)

- SSH access and basic command implementation

### AWS Infrastructure

1. Amazon Machine Image (AMI) with AWS EC2

- Setting up private shared AMIs

- EC2 instance management

- Troubleshooting common error messages

- AWS Academy ID management

2. EC2 Instance Access

- SSH connection methods

- Basic command implementation

- Error handling and troubleshooting

- Security best practices

### Container Management Fundamentals

- Docker Hub interaction

- Image searching

- Pulling and listing images

- Image inspection

- Container Operations

- Creation and startup

- Restart procedures

- Renaming containers

- Understanding attach vs. execute commands

- Container and image deletion

## Page 2: Network Management and Jenkins Introduction

### Container Network Management

1. Network Operations

- Network listing and filtering

- IP address management

- Port configuration (explicit and automatic)

- Network bridge creation

2. Troubleshooting

- Error message interpretation

- Problem analysis

- Solution implementation

- Network diagnostics

### Jenkins Overview

1. Fundamentals

- Purpose and benefits

- Architecture understanding

- Controller (master) vs. agent (slave) setup

- Vertical vs. horizontal scaling

2. Basic Setup

- Installation procedures

Code:

1 -> c
2 -> b
3 -> d
4 -> f
5 -> e
6 -> a

- Initial configuration

- Simple pipeline creation

- Testing methodology

### Jenkins Pipeline Basics

1. Multi-staged Pipeline

- Concept understanding

- Setup procedures

- Stage management

- Performance optimization

2. Pipeline Syntax

- Section elements

- Configuration options

- Best practices

- Common patterns

## Page 3: Advanced Pipeline Implementation

### Commit Pipeline and Jenkinsfile

1. Pipeline Structure

- Section types and usage

- Element configuration

- Code preservation

- Version control integration

2. Implementation

- Setup procedures

- Configuration management

- Error handling

- Performance optimization

### Traffic Light Project Implementation

1. Project Setup

- NodeJS integration

- Test case creation

- Pipeline configuration

- Local testing procedures

2. Jenkins Controller Setup

- Installation requirements

- Configuration steps

- Testing procedures

- Troubleshooting guidelines

### Advanced Pipeline Features

1. Checkout Pipeline

- Setup procedures

- Configuration options

- Integration points

- Error handling

2. Install & Test Pipeline

- Implementation steps

- Testing methodology

- Performance monitoring

- Optimization techniques

## Page 4: Container Integration and API Testing

### Container Pipeline Integration

1. API Implementation

- Network testing preparation

- HTTP integration

- Container setup

- Test execution

2. Testing Framework

- Unit test implementation

- API endpoint testing

- Container interaction

- Performance validation

### Project Repository Management

1. Code Organization

- Introduction directory structure

- Exercise management

- Git integration

- Access control

2. Practical Implementation

- Code cloning procedures

- Repository navigation

- Error handling

- Best practices

### Final Considerations

1. Testing Methodology

- Containerized application testing

- Welcome message verification

- API unit testing

- Performance validation

2. Documentation and Resources

- Code repository access

- Exercise documentation

- Troubleshooting guides

- Additional resources