# COURSE AGENDA:

## CCDE Certification Program Syllabus

### Business Strategy Design – 15 %

1.  Evaluate the impact of project management methodologies (e.g. waterfall and agile) on the network design lifecycle

2.  Ensure business continuity and operational sustainability (e.g. RPO/RTO, ROI, CAPEX/OPEX cost analysis, and risk/reward)

### Control, Data, and Management Plane Design - 25%

1.  Analyze, develop, and optimize design options and aspects of control, data, and management planes for resilient, scalable, and secure networks, including operational aspects (e.g. simplicity vs. complexity, efficient operations, cost, and ease of management).

2. End-to-end IP traffic flow in a feature-rich network

3. Data, control, and management plane technologies

4. Centralized, decentralized, or hybrid control plane

5. Automation/orchestration design, integration, and on-going support for networks (e.g. interfacing with APIs, model-driven management, controller-based technologies, evolution to CI/CD framework)

6. Traditional and modern network designs

7. Software-defined architecture and controller-based solution design (SD-WAN, overlay, underlay, and fabric)

## Network Design - 30%

1. Plan, design, validate and optimize resilient, scalable, and secure modular networks, covering both traditional and software-defined (SDx) architectures, considering:

- Technical constraints and requirements

- Operational constraints and requirements

- Application behavior and needs

- Business requirements

- Implementation plans

- Migration and transformation
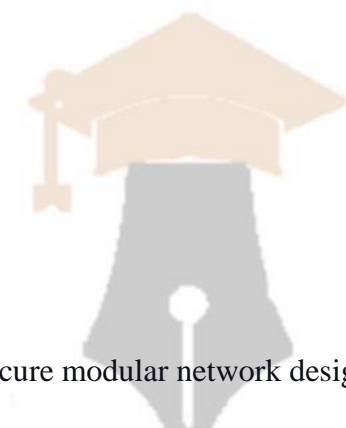
## Service Design - 15%

1. Build resilient, scalable, and secure modular network design based on constraints (i.e. technical, operational, application, and business constraints) to support applications on the IP network (e.g. voice, video, backups, data center replication, IoT, and storage)

2. Incorporate cloud/hybrid solutions based on business-critical operations

- Regulatory compliance

- Data governance (i.e. sovereignty, ownership, and locale)

- Service placement

- SaaS, PaaS, and IaaS

- Cloud connectivity (e.g. direct connect, cloud on ramp, MPLS direct connect, and WAN integration)

- Security

## Security Design - 15%

1. Incorporate network security design and integration

- Segmentation

- Network access control

- Visibility

- Policy enforcement

- Zero-Trust Networking

- CIA triad

- Regulatory compliance (if provided the regulation)