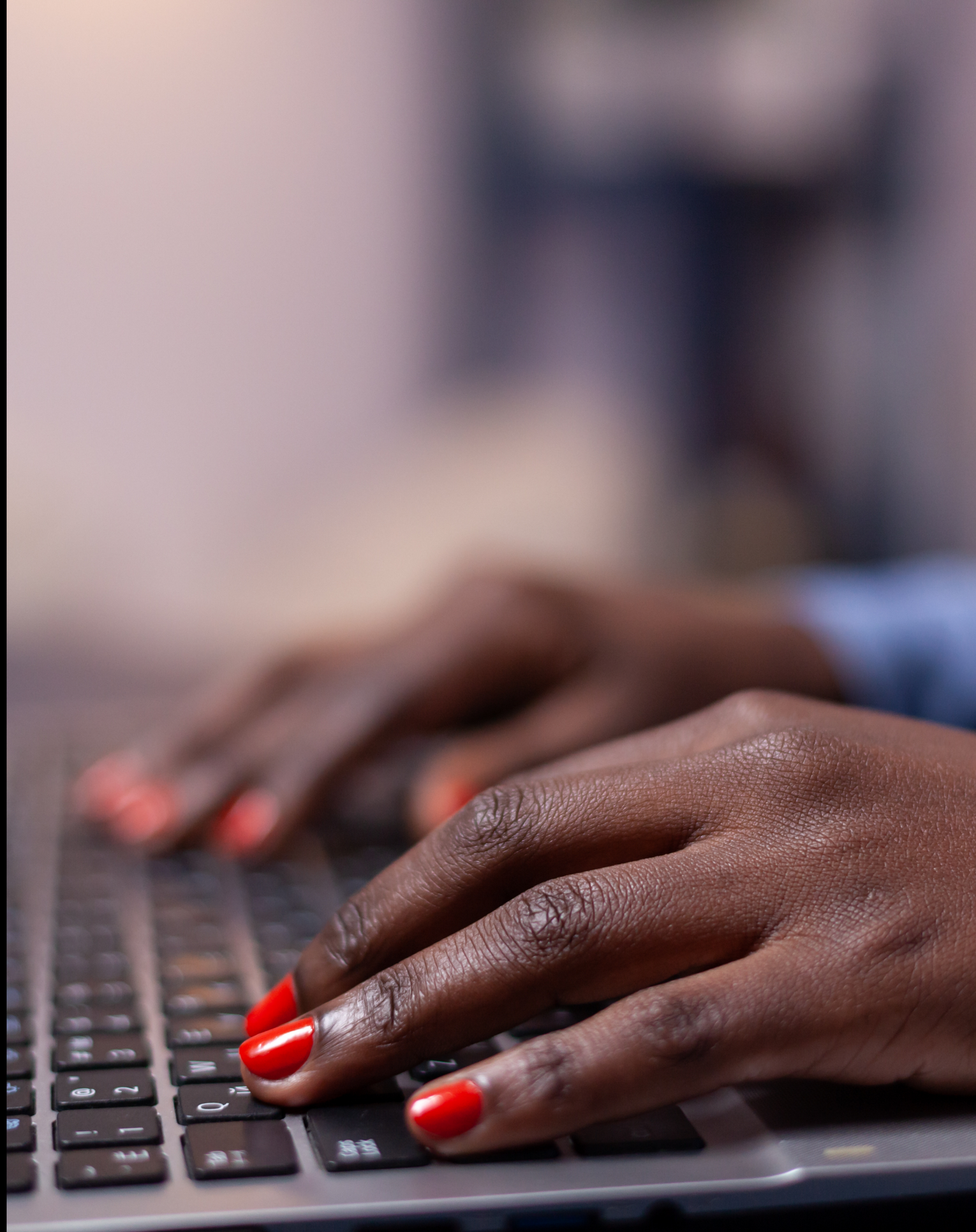
EDACY

Curriculum

SOFTWARE ARCHITECTURE

CTO TRACK



COURSE OVERVIEW

This 12-week intensive course prepares experienced engineers to transition into Software Architect and CTO roles. You will gain critical technical expertise in software architecture and enhance leadership and managerial skills necessary for early-stage startup environments.

COURSES DESCRIPTION

This curriculum is carefully crafted to bridge technical depth with leadership expertise, combining core software architecture principles with practical leadership and management skills. You'll work on hands-on projects and real-world case studies, attend expert-led workshops, and participate in mentorship sessions to enhance both your technical knowledge and strategic leadership capabilities.

LEARNING OBJECTIVES

TECHNICAL SKILLS:

By the end of this course, students will be able to:

- Design and implement scalable software architectures.
- Utilize modern cloud infrastructure and DevOps methodologies.
- Implement robust security practices and maintain compliance.
- Efficiently manage data architectures and integration processes.
- Employ continuous delivery and automated testing strategies.

LEARNING OBJECTIVES

SOFT SKILLS:

By the end of this course, students will be able to:

- Lead and manage high-performing technical teams effectively.
- Communicate strategic technical decisions clearly to stakeholders.
- Foster innovation and adaptability within teams.
- Navigate technical strategy aligned with business objectives.
- Develop a professional growth plan toward leadership roles.

WEEKLY CURRICULUM BREAKDOWN

WEEK 1 :

FOUNDATIONS OF SOFTWARE ARCHITECTURE

- Architectural patterns (Monoliths, Microservices)
- Architectural principles (SOLID, DRY, KISS)
- Documentation and modeling (UML, C4)
- Architectural Decision Records (ADRs)
- Role transition strategies

WEEK 2 :

DESIGNING SCALABLE SYSTEMS

- Principles of distributed systems
- Scalability strategies and load balancing
- Performance optimization techniques
- Defining system boundaries
- Developing effective proofs-of-concept

WEEK 3 :

CLOUD ARCHITECTURE & INFRASTRUCTURE

- Cloud platforms (AWS, Azure, GCP)
- Infrastructure as Code (IaC) fundamentals
- Kubernetes and container orchestration
- Serverless computing essentials
- Managing cloud costs and resources

WEEK 4 :

AGILE ARCHITECTURE & CONTINUOUS DELIVERY

- Agile integration in architectural decisions
- CI/CD pipeline fundamentals
- Addressing and managing technical debt
- Tooling for continuous integration (CI)
- Communicating architectural strategies effectively

WEEK 5 :

SECURITY & COMPLIANCE

- Security principles for architects
- Threat modeling and security frameworks
- Implementing secure coding standards
- Regulatory compliance (GDPR, HIPAA)
- Building a culture of security awareness

WEEK 6 :

DATA ARCHITECTURE & MANAGEMENT

- Data modeling and database types
- Data pipelines and ETL processes
- Relational vs. NoSQL databases
- Establishing data governance practices
- Legacy system data management

WEEK 7 :

INTEGRATION & DOCUMENTATION

- NAPI and event-driven architecture
- Effective documentation practices
- Integrating third-party services
- Collaboration across technical teams
- Implementing API best practices

WEEK 8 :

QUALITY ASSURANCE & TESTING

- Strategies for testing complex systems
- Quality metrics and continuous monitoring
- Automated testing and deployment
- Integrating QA within Agile frameworks
- Ensuring product reliability

WEEK 9 :

AGILE LEADERSHIP & TEAM MANAGEMENT

- Creating high-performing teams
- Scaling Agile methodologies
- Performance management and coaching
- Effective succession planning
- Structuring agile teams

WEEK 10 : DEPLOYMENT AND GIT WORKFLOW

- Git version control basics
- Branching and Git workflows
- CI/CD introduction
- Deploying apps on Heroku
- Effective teamwork and conflict resolution

WEEK 11 :

INNOVATION & EMERGING TECHNOLOGIES

- Identifying and evaluating emerging tech
- Fostering an innovation culture
- Rapid prototyping and experimentation
- Leading research and development efforts
- Technology evangelism

WEEK 12 :

CAPSTONE PROJECT & CAREER DEVELOPMENT

- Capstone project presentations
- Effective stakeholder communication
- Personal career planning
- Leadership skills enhancement
- Presentation and public speaking

UPON SUCCESSFUL COMPLETION, STUDENTS WILL BE READY TO ASSUME SENIOR LEADERSHIP ROLES SUCH AS SOFTWARE ARCHITECT OR CTO, EQUIPPED TO DRIVE TECHNICAL INNOVATION AND STRATEGIC DECISION-MAKING