CLOUD ENGINEERING TECHNOLOGY (CLDE)

CLDE1110 | Introduction to Cloud Services | Lecture/Laboratory (2 Credits)
This course provides students with a foundational understanding of cloud computing concepts, core services, and deployment models. Students will explore key topics such as virtualization, cloud storage, networking, security services, and cost management while gaining hands-on experience with major cloud platforms.

CLDE1120 | DevOps Fundamentals | Lecture/Laboratory (2 Credits)
Investigation of industry-standard terminology technology and core principles used in automating the modern datacenter. Portions of this course help to prepare for the ICP Foundations of DevOps exam.

CLDE1210 | Cloud Architecting | Lecture/Laboratory (3 Credits)
Architecting business solutions for modern cloud services utilizing industry best practice concepts. Portions of this course help to prepare for the Amazon Cloud Architect Associate exam.

CLDE1231 | Cloud Systems I | Lecture/Laboratory (4 Credits)
This course provides comprehensive training in cloud computing technologies with a focus mostly on Azure with elements of AWS. Students will gain hands-on experience in operating and managing cloud resources through Azure Portal and AWS, mastering essential skills in resource deployment and management. The course emphasizes architectural decision-making based on Azure and AWS best practices, enabling students to design scalable and resilient cloud solutions.
Prerequisite(s): CLDE1110

CLDE2110 | Cloud Security | Lecture/Laboratory (3 Credits)
Utilize best practice concepts in securing modern cloud services. Portions of this course help to prepare for the Amazon Security Specialty exam.

CLDE2120 | Cloud Database Systems | Lecture/Laboratory (3 Credits)
Build secure, durable and scalable database solutions for modern cloud services. Portions of this course help to prepare for the Amazon Database Specialty exam.

CLDE2121 | Cloud Systems II | Lecture/Laboratory (4 Credits)
This comprehensive, hands-on course equips students with cutting-edge skills for managing hybrid cloud environments and implementing Infrastructure as Code (IaC) practices across Azure, AWS, and multi-cloud scenarios. Students will master advanced cloud architectural patterns, automated deployment strategies, and enterprise-grade security implementations. The course emphasizes real-world cloud environment management, from single-cloud solutions to complex hybrid and multi-cloud architectures. This course focuses on practical, industry-relevant skills that prepare students for the modern IT landscape and advanced cloud certifications.
Prerequisite(s): CLDE1231

CLDE2131 | Access Control Authentication and PKI | Lecture/Laboratory (4 Credits)
Explore the fundamental concepts and practical applications of Access Control, Authentication, and Public Key Infrastructure (PKI) in cybersecurity. Students will gain a comprehensive understanding of access control mechanisms, authentication protocols, and the role of PKI in securing digital communications. The course covers access control models and implementation, authentication methods and technologies, PKI components and architecture, digital certificates and certificate authorities, cryptographic algorithms and key management, identity and access management, multi-factor authentication, biometric authentication systems, PKI deployment and management, and security policies and best practices.

CLDE2141 | BI, Analytics, and Data Science | Lecture/Laboratory (4 Credits)
This course provides a comprehensive exploration of business intelligence (BI) and data analytics, pivotal for driving data-driven decision-making in contemporary organizations. Students will grasp the foundational concepts of BI, analytics, and their strategic importance in leveraging data for competitive advantage.

CLDE2210 | Hybrid Cloud Management | Lecture/Laboratory (3 Credits)
Design and implement integrated environments of on-premises and public cloud services that enable flexibility and the ability to migrate workloads, while maintaining data security and compliance. Portions of this course help to prepare for the Red Hat CloudForms Hybrid Cloud Administration exam.

CLDE2211 | Cloud Security | Lecture/Laboratory (4 Credits)
This course provides an in-depth understanding of cloud security principles, best practices, and security controls across different cloud service models (IaaS, PaaS, and SaaS). Students will learn how to secure cloud environments, including Microsoft Azure and Amazon Web Services (AWS), through hands-on labs and projects. The course is designed to meet the National Security Agency (NSA) certification requirements for cloud security professionals. It covers topics such as cloud security architecture, identity and access management, data protection, network security, monitoring, compliance, and incident response.
Prerequisite(s): CLDE2121

CLDE2220 | Advanced Cloud Networking | Lecture/Laboratory (3 Credits)
Apply AWS networking nuances and how they relate to the integration of AWS services in provisioning Routing architectures, multi-region solutions for a global enterprise and highly available connectivity solutions. Portions of this course help to prepare for the Amazon Advanced Networking Specialty exam.

CLDE2230 | Cloud Enterprise Systems | Lecture/Laboratory (3 Credits)
Evaluate cloud application requirements and make architectural recommendations for secure implementation, deployment, and provisioning. Portions of this course help to prepare for the Amazon Solutions Architect Professional exam.

CLDE2231 | CLDE Problem Solving & Critical Thinking | Lecture/Laboratory (4 Credits)
Students will learn to approach complex technical challenges systematically, applying analytical reasoning and creative solutions to real-world cloud scenarios. The course covers problem-solving methodologies, decision-making frameworks, and strategies for troubleshooting cloud-based systems. Topics include root cause analysis, system thinking, design patterns for cloud architecture, performance optimization, cost management, and security incident response. Through case studies, hands-on labs, and collaborative projects, students will tackle diverse cloud-related problems, from infrastructure design to application deployment and management. Emphasis is placed on developing a mindset for continuous improvement and innovation in cloud environments.

CLDE2234 | DevOps and DevSecOps | Lecture/Laboratory (4 Credits)
This comprehensive, hands-on course equips students with cutting-edge skills for implementing DevOps and DevSecOps practices across Azure, AWS, and multi-cloud environments. Students will master advanced Infrastructure as Code (IaC) techniques, secure CI/CD pipeline development, and automated security integration throughout the cloud-native software development lifecycle. The course emphasizes real-world cloud environment management, from containerized microservices to enterprise-scale hybrid cloud deployments. Students will gain expertise in cloud-native DevOps toolchains, security automation, and operational excellence practices that align with modern cloud architecture patterns. This course focuses on practical, industry-relevant skills that prepare students for senior DevOps and cloud security roles in the modern IT landscape.

CLDE2290 | Cloud Capstone Project | Lecture/Laboratory (3 Credits)
Portfolio or external project work to exhibit all skills gained throughout program.

CLDE2291 | Summative Experience | Directed Study (5 Credits)
Portfolio or external intern based project work to exhibit all skills gained throughout program.

CLDE2292 | Summative Experience | Directed Study (3 Credits)
Portfolio or external intern based project work to exhibit all skills gained throughout program.

CLDE3099 | Special Topics | Lecture (1 Credit)
Explore a cutting edge IT topic with analysis of where it is in the adoption curve for the business community and how it may affect the future of IT work. Topic will be determined by the student and instructor. Instructor permission required for registration.