COMPUTER SCIENCE TECHNOLOGY (CST)

CST 500 Enterprise Architecture, Strategic and Technical Research 3 credits
This course provides a comprehensive exploration of Enterprise Architecture (EA), focusing on strategic planning and technical research. It equips students with the skills to design, implement, and manage architectures that align an organization's business strategy, processes, information systems, and technology infrastructure to achieve success.

CST 510 Project Management, Systems Development, and Risk 3 credits
This course offers an integrated study of project management principles, systems development methodologies, and risk management practices within the context of complex global IT projects. This course is designed for students and professionals seeking a comprehensive understanding of how to effectively manage projects, develop robust IT systems, lead diverse multi-disciplined teams, and proactively address project risks for successful project delivery.

CST 520 Database Systems 3 credits
This course offers a comprehensive study of the principles, design methodologies, and practical applications of database management systems to support the enterprise of the future (DBMS). This course is designed for students and professionals interested in understanding the core concepts of database systems and developing the skills to design, implement, and manage databases and datasets for various applications.

CST 530 Artificial Intelligence, High Performance Compute, and Ethical Considerations 3 credits
This course offers an integrated study of the principles, techniques, ethical considerations, and applications of artificial intelligence (AI) in combination with high-performance computing (HPC). This course is designed for students and professionals interested in harnessing the power of advanced computing technologies to develop and deploy AI solutions that can process vast amounts of data and solve complex problems at scale.

CST 540 Cloud Architecture and Infrastructure 3 credits
This course provides a comprehensive study of cloud computing principles, design methodologies, and best practices for architecting scalable and reliable cloud-based, hybrid, and multi-cloud solutions assisting global organizations design and build the architectures and infrastructures of the future. This course is designed for students and professionals interested in understanding how to design, deploy, and manage cloud infrastructure to meet the demands of modern global enterprises utilizing advanced applications and services.

CST 600 Advanced Algorithms 3 credits
This course gives students the foundational training for the artificial intelligence era. The course offers an in-depth exploration of complex algorithms and data structures, enabling students to develop a deep understanding of algorithm design, analysis, optimization, and automation. This course is designed for students with a strong background in computer science and algorithms who seek to delve into more advanced topics and tackle challenging computational and automation business problems.

CST 605 Machine Learning and Artificial Intelligence 3 credits
This course offers an in-depth study of the principles, algorithms, and applications of machine learning and AI technologies. This course is designed for students and professionals seeking to develop a strong foundation in both machine learning and AI and to apply these powerful techniques in solving real-world challenges across diverse domains.

CST 610 Information Technology Audit, Control, and Risks 3 credits
This course provides a comprehensive study of digital governance. Topics include the principles, methodologies, and best practices related to auditing, controlling, managing IT systems, and technology and business risks within organizations. This course is designed for students and professionals interested in understanding the critical role of IT auditing and risk management in ensuring the security, reliability, and compliance of information technology systems

CST 615 Introduction to Data Engineering 3 credits
This course provides an in-depth exploration of the fundamental principles and practices in the field of data engineering focused on the building of tools, transformation, and accessibility of data. This course is designed for students with a basic understanding of data requirements and flows driving towards practitioners to develop the skills necessary to design, build, and maintain data pipelines for handling large-scale data processing and storage.

CST 620 Computer Vision 3 credits
This course provides an in-depth exploration of the principles, techniques, and applications of computer vision as we enter the exciting era of autonomous technologies and products. Computer Vision is a cutting-edge field of study that enables machines to interpret and understand visual information, anomalies, and phenomena from images and videos. This course is designed for students with a strong background in computer science or related fields who wish to delve into the fascinating world of computer vision and its real-world applications.

CST 625 Advanced Database Administration 3 credits
This course offers an in-depth exploration of the principles, techniques, and best practices involved in administering and managing complex and large-scale relational and non-relational database systems for global enterprises. This course is designed for students and professionals with a solid foundation in database administration who seek to enhance their skills and knowledge in handling challenging database environments with complex qualitative and quantitative datasets.

CST 630 Data Engineering Solutions Applications 3 credits
This course is an advanced-level program that builds upon the foundational knowledge of data engineering principles and focuses on practical applications of data engineering in real-world scenarios. This course is designed for students who have completed an introductory data engineering course or have equivalent knowledge and want to delve deeper into the implementation of applied, industry relevant data engineering solutions to address complex data challenges faced by organizations.

CST 633 Autonomous and Smart Product Development 3 credits
This course provides an in-depth exploration of the principles, technologies, and methodologies involved in creating innovative and intelligent products capable of autonomous decision-making and adaptive behavior. This course is designed for students with a background in engineering, robotics, artificial intelligence, or related fields who aspire to design cutting-edge products that leverage autonomous systems and smart technologies.

CST 635 Data Science Tools 3 credits
This course provides an in-depth exploration of the essential tools, software, and programming languages used in the field of data science. This course is designed for students and professionals seeking to gain hands-on experience with the tools that support the end-to-end data science workflow, from data acquisition and preprocessing to analysis, modeling, and visualization.

CST 640 Platform and Product Development 3 credits
This course offers a comprehensive study of the principles, strategies, and practices involved in developing successful platforms and products in the technology industry. This course is designed for students interested in entrepreneurship, product management and development, software development, and those aspiring to build innovative and scalable technology solutions for any industry.

CST 645 Natural Language Processing 3 credits
This course offers a comprehensive study of the principles, methodologies, and applications of NLP, a branch of artificial intelligence that focuses on the interaction between computers and human language. This course is designed for students and professionals interested in understanding and developing technologies that enable machines to understand, interpret, and generate human language driving comprehensive business and industry outcomes.

CST 650 Performance and Requirements Engineering 3 credits
This course offers a comprehensive study of the principles, methodologies, and techniques involved in engineering and managing performance and non-functional requirements of software systems. This course is designed for students and professionals in the field of software engineering who are interested in understanding how to design, analyze, and optimize the performance of complex software applications while meeting various non-functional requirements.

CST 655 Big Data and Data Mining 3 credits
This course offers an in-depth exploration of two interrelated fields: big data and data mining. This course is designed for students and professionals to provide the patterns, practices, and procedures aligned with a solid foundation in data analysis and database concepts, who seek to understand the challenges and opportunities presented by big data and learn how to leverage data mining techniques to extract valuable insights from vast datasets.

CST 660 Data Operations for Agile Data Management 3 credits
This course provides a comprehensive study of the principles, practices, and tools related to DataOps, a methodology that combines the principles of DevOps with data management to enable efficient and agile data and business processes. This course is designed for students and professionals interested in streamlining data workflows, improving collaboration between data teams, and maximizing the value of data in an organization through insights and automation.

CST 665 Network Architecture and Analysis 3 credits
This course provides a comprehensive study of the principles, design methodologies, and analytical techniques used in building and analyzing modern computer networks for the present and future global enterprise. This course is designed for students and professionals interested in understanding the intricacies of network architecture and developing the skills to design, optimize, and troubleshoot complex network infrastructures meeting the demands of advanced organizations.

CST 670 Predictive Analytics 3 credits
This course provides a comprehensive study of techniques and methodologies used to predict future outcomes and trends based on historical data. This course is designed for students and professionals with a strong foundation in data analysis and statistics who want to advance their skills in predictive modeling and apply data-driven insights to make informed decisions.

CST 675 Reinforcement Learning 3 credits
This course offers an in-depth exploration of the principles, algorithms, and applications of reinforcement learning, a subfield of artificial intelligence focused on training agents to make decisions in dynamic and uncertain environments based in a reward-like framework. This course is designed for students and professionals interested in understanding and implementing advanced machine learning techniques that enable agents to learn from interaction and achieve complex tasks through trial, error, and rewards-based frameworks.

CST 680 Advanced Agile Portfolio Management 3 credits
This course offers an in-depth exploration of the principles, methodologies, and best practices involved in managing and optimizing IT portfolios and programs using agile principles and practices. This course is designed for experienced IT professionals, project managers, and IT leaders who seek to enhance their skills in aligning IT investments with business goals, delivering value through agile practices, and maximizing the impact of IT projects.

CST 685 Empirical Methods and Data Visualization 3 credits
This course is designed to equip students with the essential skills to conduct empirical research and effectively communicate findings through data visualization. This course is suitable for students and professionals seeking to enhance their abilities in data analysis, research methodologies, and visual representation of data-driven insights.

CST 690 Robotic Process Automation (RPA) 3 credits
This course provides a comprehensive study of the principles, technologies, and applications of RPA in automating repetitive and rule-based business processes. This course is designed for students and professionals interested in leveraging automation to enhance productivity, reduce errors, and optimize business workflows.