NKU | COLLEGE OF **Informatics**™

School of Computing and Analytics
Student Learning Objectives

Applied Software Engineering Major
- Reliable software creation
- User experience design
- Development process management
- Experiential learning
- Communication and presentation

Computer Science Major, BS
- *Programming and Algorithms*
  - Learn fundamentals of computer program with the ability to design, implement and debug program code
  - Select, design and implement the proper data structure(s) and preferred algorithms for a given problem
- *Systems*
  - Understand the underlying systems of computers
  - Learn the role of the CPU and fetch-execute cycle, and the memory hierarchy
  - Understand the role of synchronization and system calls
- *Software Engineering*
  - Obtain experience with each stage of the software engineering lifecycle
  - Obtain experience in team work in designing and implementing a large-scale software product

Cybersecurity, BS
- Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles
- Apply security principles and practices to maintain operations in the presence of risks and threats
- Analyze a complex computing problem
- Apply principles of computing and other relevant disciplines to identify solutions
- Design, implement, and evaluate a computing-based solutions

Data Science Major, BS
- Collect, transform and prepare data for analysis
- Understand and apply various data analyses or data exploration methods to solve problems
- Communicate data analysis findings with appropriate visualizations and/or verbal and written reporting
- Define problem; formulate methodology for collecting data, preparing and organizing data, and analyzing and/or modeling data; develop program that automates future analytic and/or modeling efforts

Health Informatics Major, BS
- Design Information systems to ensure data collection, storage, analysis and reporting health data.
  - Demonstrate sound programming knowledge & skills
  - Effectively apply database design concepts
- Use health information technology systems, and databases.
  - Demonstrate practical application of IT project management concepts
  - Demonstrate understanding of IT project risk management concepts
- Evaluate organizational readiness and compliance with federal and state regulations and policies for health information.
  - Demonstrate skills identifying and comparing software alternatives
  - Demonstrate skills on understanding tangible and intangible benefits of new system and the feasibility of process
- Demonstrate the ability to work with transdisciplinary healthcare teams with patient-centric delivery models.
  - Demonstrate understanding of concepts pertaining to individual and team accountability
  - Demonstrate understanding of JAD and roll of users in systems development
- Apply informatics concepts and approaches as they relate to specific healthcare problems.
  - Demonstrate skills using productivity tools to solve common business problems
  - Demonstrate ability to apply strategic IT value configurations in various business areas
- Employ healthcare operational and organizational knowledge in the personnel and service management within healthcare organizations.
  - Demonstrate understanding of concepts pertaining to individual and team accountability
  - Demonstrate skills using productivity tools to solve common business problems

Information Systems and Business Analytics Major, BS
- Demonstrate strong analytical skills and technological expertise in developing business systems
  - Demonstrate sound programming knowledge and skills
  - Effectively apply database design concepts
- Apply theoretical information systems concepts in real world
  - Demonstrate practical application of IT project management concepts
  - Demonstrate understanding of IT project risk management concepts
- Evaluate and adopt new technology
  - Demonstrate skills identifying and comparing software alternatives
  - Demonstrate skills on understanding tangible and intangible benefits fo the new system and the feasibility of the process
- Work effectively in diverse project teams
  - Demonstrate understanding of concepts pertaining to individual and team accountability
  - Demonstrate understanding of JAD and roll of users in system development
- Demonstrate the ability to integrate IS/IT with other functional areas of the organization
  - Demonstrate skills using productivity tools to solve common business problems
  - Demonstrate ability to apply strategic IT value configurations in various business areas

Information Technology Major, BS

- *Programming*
    - Learn the fundamentals of computer programming
    - Design, implement, and debug program code
- *System Administration*
    - Administer Windows/Linux systems
    - Perform standard system administration tasks such as installation, configuration, and troubleshooting ⌈SEP⌉
- *Networking*
    - Learn network protocols and deploy networks by configuring network devices
    - Apply concepts of switching and routing ⌈SEP⌉
- *Security*
    - Describe threats and identify security controls to mitigate those threats
    - Apply appropriate concepts and tools to secure networks ⌈SEP⌉
- *Web Development*
    - Learn the fundamentals of developing web applications
    - Apply web design concepts in real world setting ⌈SEP⌉
- *Database*
    - Demonstrate ability to write SQL queries
    - Use appropriate constraints (such as primary key, unique, check, not null, and foreign key) when designing/implementing databases