CNAS ASSESSMENT COMMITTEE
COMPUTER SCIENCE AND COMPUTER INFORMATION SYSTEMS DEGREE PROGRAMS
CURRICULAR MAPPINGS AND COURSE EXPECTED STUDENT LEARNING OUTCOMES (SLOs)

I. CURRICULAR MAPPINGS

A. DEGREE PROGRAM CURRICULAR MAPPING

DEFINED PROGRAM SLOs	COURSE NO.	LINK TO PROGRAM SLOs (The numbers are course SLO numbers that link the course to the program SLO – See Section II for the defined course SLO numbers)					
		CS/CIS PR-1	CS/CIS PR-2	CS/CIS PR-3	CS/CIS PR-4	CS/CIS PR-5	CS/CIS PR-6
CS/CIS PR-1: (GE) Demonstrate competence with **Windows** and basic **MS Office** applications especially MS WORD, EXCEL, and PowerPoint.	CS*200	12345					
CS/CIS PR-2: Demonstrate **technical competence*** in **Programming:** • Analyze problems and create algorithm/heuristic solutions.	CS*201		12345				
• Develop these using computer-programming methodologies in several programming languages.	CS*202		12345				
CS/CIS PR-3: Demonstrate technical competence in **Systems**. • Identify and analyze system requirements, criteria and specifications.	CS*305		123				
• Design and implement human sensitive/compatible computer based systems using appropriate tools, methods and techniques.	CS*315				12345		
• Effectively manage, organize, and retrieve all forms of information.	CS*360			12345			
• Evaluate system design solutions and their risks.	CS*365			12345			
CS/CIS PR-4: Demonstrate technical competence in **Databases.** • Be able to design and implement a functional database.	CS*370		12345				
CS/CIS PR-5: Demonstrate technical competence in **Networks.** • Be able to design, install, administer, and maintain a computer network.	CS*380		12345				
• Be able to setup, install, and use two different operating systems and be able to program client-server applications for them.	CS*403					1234	
CS/CIS PR-6: Develop socially, professionally, and ethically utilize these technical skills to construct robust, secure, beneficial (commercial, educational, social) systems i.e. NO Spam, Phishing, Hacking, Deceptive, Fraudulent, Criminal, or Terroristic systems.	CS*410		12345				
	CS*431		12345	12345	12345	12345	12345
*Technical Competence means to be able to design, implement (build/code, test, debug), communicate effectively (in written, oral, and numerical forms), individually, and as part of a team.	CS*492					12345	

B. CS/CIS GE CURRICULAR MAPPING

DEFINED GE CS/CIS SLOs (IN PROGRESS)	COURSE NO.	LINK TO GE SLOs (The numbers are course SLO numbers that link the course to the program SLO – See Section II for the defined course SLO numbers)				
		CS GE-1	CS GE-2	CS GE-3	CS GE-4	CS GE-5
• **CS GE-1: Describe the major components of all modern computer systems.**	CS*200	1	2	3	4	5
• **CS GE-2: Using MS Word, create a well-formatted research paper with outline, embedded table, graphic illustration, and references.**						
• **CS GE-3: Using MS Excel, create a well-formatted spreadsheet to calculate a cash-flow student budget.**						
• **CS GE-4: Using PS PowerPoint, create a well-formatted presentation corresponding to the outline for the above research paper.**						
• **CS GE-5: Using HTML, create well-formatted, linked webpages.**						

II. CS/CIS APPROVED COURSE EXPECTED SLOs

COURSE NO.	COURSE SLOs
CS*110: Web Site Design	**PENDING FACULTY INPUT**
CS*200: Computer Applications and Lab	**Upon successful completion of this course, students will be able to** 1. Describe the major components and properties of all modern computer systems. 2. Using MS Word, create a well-formatted research paper with outline, embedded table, graphic illustration, and references. 3. Using MS Excel, create a well-formatted spreadsheet to calculate a cash-flow student budget. 4. Using MS PowerPoint, create a well-formatted presentation corresponding to the outline for the above research paper (in SLO #2). 5. Using HTML, create well-formatted, linked WebPages. **Note:** With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.
CS*201: Programming I	**Upon successful completion of this course, students will be able to** 1. Construct appropriate I/O statements. 2. Construct assignment statements. 3. Construct conditional statements. 4. Construct looping statements. 5. Design, code, test and debug programs, utilizing these constructs to create solutions for simple problems. **Note:** With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.
CS*202: Programming II	**Upon successful completion of this course, students will be able to** 1. Describe the steps involved in the problem solving process. 2. Utilize various design tools to develop correct solutions to problems. 3. Succinctly document both the problem and the solution in given programming tasks. 4. Apply object-oriented programming techniques to develop real world applications (define objects and their properties, constructing appropriate methods for each).

	5. Code, test and debug efficient, event-driven programs to implement solutions of simple problems in a visual development environment using the Java programming language. **Note:** With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.
CS*305: Assembly Language and Computer Organization	**Upon successful completion of this course, students will be able to** 1. Identify the function of each major component of microcomputer systems, including bits, gates, circuits, and the levels of languages used to control them (including machine, assembly, and high-level) 2. Convert the various number systems (binary, octal, decimal and hexadecimal) used in computers. 3. Design, code, and test programs using the basic grammar, syntax and standards of the Intel-based assembly language (16-bit and 32-bit modes) to solve real world problems. **Note:** With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.
CS*315: Intro to File Processing and Database Management	**Upon successful completion of this course, students will be able to** 1. Design, develop and implement small professional databases using a specified relational database management system (DBMS). 2. Correctly demonstrate the steps for data normalization when designing a database. 3. Utilize the SQL (Structured Query Language) fluently for application development. 4. Describe and distinguish the features of Object-Oriented DBMS and Distributed DBMS. 5. Describe and demonstrate database administration, security, transaction failure and recovery. **Note:** With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.

CS*360: Introduction to Operating Systems	**Upon successful completion of this course, students will be able to** 1. Describe the history and importance of the operating system (OS) in a computer system. 2. Completely describe the five major tasks of an OS (i.e. process management, memory management, file management, I/O device management, and network management. 3. Describe the roles and importance of computer system management and security. 4. Describe the features, strengths, and weaknesses of different operating systems, such as batch, interactive, real-time, embedded, and parallel systems. 5. Install, configure, and manage the MS-Windows, UNIX and Linux Operating Systems. Simulate and optimize some component parts of each OS. **Note:** With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.
CS*365: Computer Architecture	**Upon successful completion of this course, students will be able to** 1. Identify and describe all the major components of computer systems and CPU's. 2. Calculate and compare the duration of basic operations with machine cycles. 3. Describe the basic steps of a complete machine cycle and the common ways to speed up processor execution. 4. Describe how to construct CPU components from logic gates utilizing the basic concepts of digital electronics. 5. Compare and contrast RISC vs. CISC, and single vs. multi-core CPU Architectures. **Note:** With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.
CS*370: Data Structures and Algorithm Analysis	**Upon successful completion of this course, students will be able to** 1. Describe the operation, implementation and performance of fundamental algorithms and data structures, and the relative merits and suitability of each for various applications. 2. Design, implement, and test efficient software solutions for various application areas using appropriately selected algorithms and data structures (including especially linked-lists, stacks, and trees). 3. Analyze data structures and algorithms, by comparing and evaluating them with respect to time and space requirements, in order to make the most appropriate design choices for various application areas. 4. Motivate and explain efficient programming concepts, relevant alternatives and decision recommendations, in written form, to IT specialists. 5. Apply relevant standards and ethical considerations to the design and implementation of efficient software solutions.

	Note: With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.
CS*380: Organization of Programming Languages	**Upon successful completion of this course, students will be able to** 1. Identify and describe the four major families of programming languages. 2. Design, code, test and debug a program using at least one Imperative language. 3. Design, code, test and debug a program using at least one Functional language. 4. Design, code, test and debug a program using at least one Logic language. 5. Design, code, test and debug a program using at least one Object-oriented language. **Note:** With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.
CS*403: Data Communication and Networking	**Upon successful completion of this course, students will be able to** 1. Describe the fundamental concepts and principles of telecommunications systems (e.g. configurations, protocols, OSI and TCP/IP models), and data and signal conversion for data communications. 2. Describe the basic principles and structures of computer networks (LAN, MAN, PAN, WAN, Internet and World Wide Web). 3. Describe the principles of network design, management, and security. 4. Use actual hardware and software for network connections, administration, and multiplexing, along with error detection and error correction to master the skills of network operating systems (NOS, e.g. MS Windows or LINUX) through the hands-on projects. The skills attained through the manipulation of NOS will be applicable to network administration of a client-server system utilizing the NOS. **Note:** With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.
CS*410: Compiler Design and Construction	**Upon successful completion of this course, students will be able to** 1. Describe the purposes of and differences between compilers, interpreters and assemblers. 2. Construct Regular Expressions. 3. Apply the theories of finite automata and context-free grammars to construct a Parser. 4. Apply the theories of finite automata and context-free grammars to construct a Lexical Analyzer. 5. Generate Object code for given Source Code in a specified language. **Note:** With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.
CS*431: Advanced Topics in Computing (Systems Analysis & Design) – Capstone Course	**Upon successful completion of this course, students will be able to** 1. Apply General Systems Theory to describe any system in terms of its components and sub-systems. 2. Identify and describe the purpose of a specified system. 3. Identify and describe the inputs, outputs, and resources of a specified system. 4. Design a system to achieve its specified purpose. 5. Implement the designed system to transform the inputs and resources into the desired outputs to achieve its intended specified purpose. **Note:** With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.
CS*492: Practicum in Computer Science	**Upon successful completion of this course, students will be able to** 1. Trouble-shoot, repair and configure computers, servers, routers, printers, copiers, and IP telephony equipment in corporate LAN, WAN, and Wireless environments. 2. Use Microsoft's Remote Install Service (RIS), and Symantec's Ghost to clone and mass duplicate corporate PC's. 3. Do simple Cat5e cabling and crimping, as well as coax cabling legacy equipment. 4. Use different applications for the remote control and remote updating of PCs, such as Microsoft's SMS and Remote Desktop, Dameware, and VN, as well as the corporate specific Helpdesk ticket-generated application called Vantive (used in Continental's and EDS's corporate environments). **Note:** With Program Faculty Consultation, an instructor may add additional SLOs to the above Program Faculty approved SLOs.