

Computer Science Assessment Plan
Rev. 12/4/2020

| Computer Science | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 21-22 |
|--|-------|-------|-------|-------|-------|-------|
| COMPB2 - Introduction to Computer Information Systems | | | | | | |
| • 1. Upon successful completion of the course, the student will be able to explain how social media, artificial intelligence, automation, and other emerging technologies, as well as government regulations of those technologies, impact organizations and society. | | | | | P | |
| • 2. Upon successful completion of the course, the student will be able to identify, describe, and apply the relevant technologies and methods used in the creation of information systems. | | | | | P | |
| • 3. Upon successful completion of the course, the student will be able to analyze an organizational task/scenario and select the appropriate information system or application software to satisfy the organizational requirements. The student will be able to create basic Office Support System documents to satisfy some of those requirements. The student will also be able to demonstrate their skill with Internet based research methods and find relevant/reliable information for a variety of purposes. | | | | | P | |
| COMPB5 - Introduction to Microsoft Office | | | | | | |
| • Upon completion the student will be able to: The students will identify and analyze computer hardware. | | | C | C | | |
| • Upon completion the student will be able to: The students will analyze problems and create, format, edit, and print word processing, spreadsheet, presentation, and database files. | | C | C | C | | |
| COMPB10 - Introduction to Programming Concepts and Methodologies using Python | | | | | | |
| • 1. Upon successful completion of the course, the student will be able to describe and apply the software development life-cycle to a given problem. | | | | | P | |
| • 2. Upon successful completion of the course, the student will be able to describe, design, implement, and test structured programs using currently accepted methodology and control structures. | | | | | P | |
| • 3. Upon successful completion of the course, the student will be able to explain what an algorithm is and then be able to translate an algorithm into a programming language. | | | | | P | |
| COMPB11 - Programming Concepts and Methodology I | | | | | | |
| • 1. Upon successful completion of the course, the student will be able to design, implement, test, and debug a program that uses each of the following fundamental programming constructs: basic computation, simple I/O, standard conditional and iterative structures, and the definition of functions. | | | | | P | |
| • 2. Upon successful completion of the course, the student will be able to use pseudocode or a programming language to implement, test, and debug algorithms for solving simple problems. | | | | | P | |
| • 3. Upon successful completion of the course, the student will be able to summarize the evolution of programming languages illustrating how this history has led to the paradigms available today. | | | | | P | |
| • 4. Upon successful completion the student will be able to demonstrate different forms of binding, visibility, scoping, and lifetime management. | | | | | P | |
| COMPB12 - Programming Concepts and Methodology II | | | | | | |
| • 1. Upon successful completion of the course, the student will be able to design and implement programs that use arrays, records/structs, strings, linked lists, stacks, queues, hash tables, and trees. | | | | | P | |
| • 2. Upon successful completion of the course, the student will be able to design, implement, test, and debug recursive functions and procedures. | | C | | | P | |
| • 3. Upon successful completion of the course, the student will be able to evaluate the tradeoffs in lifetime management of data when using manual memory management versus reference counting or tracing garbage collection. | | | | | P | |
| • 4. Upon successful completion of the course, the student will be able to explain how abstraction mechanisms support the creation of reusable software components. | | | | | P | |
| • 5. Upon successful completion of the course, the student will be able to design, implement, test, and debug programs in an object-oriented language. | | | | | P | |
| • 6. Upon successful completion of the course, the student will be able to compare and contrast object-oriented analysis and design with structured analysis and design. | | C | | | P | |
| COMPB13 - Computer Architecture and Organization | | | | | | |
| • Describe computer representation of numbers and how computer arithmetic is carried out. | | | | C | | |
| • Demonstrate understanding of the basic organization and operation of a digital computer at a machine language level. | | | | C | | |
| • Write and debug simple assembly language programs. | | C | | C | | |
| • Demonstrate how fundamental high-level programming constructs are implemented at the machine-language level. | | | | C | | |

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| COMPB14 - Discrete Structures | | | | | | |
| • Describe how formal tools of symbolic logic are used to model real-life situations, including those arising in computing contexts such as program correctness, database queries, and algorithms. | | C | | C | | |
| • Relate the ideas of mathematical induction to recursion and recursively defined structures. | | C | | C | | |
| • Analyze a problem to create relevant recurrence equations. | | | | C | | |
| • Demonstrate different traversal methods for trees and graphs. | | | | C | | |
| • Apply the binomial theorem to independent events and Bayes's theorem to dependent events. | | | | C | | |
| COMPB21 - Database Systems - Design & Structured Query Language (SQL) | | | | | | |
| • 1. Upon successful completion of the course, the student will be able to design and produce fully normalized databases from real world scenarios using modern data modeling tools. | C | | | | P | |
| • 2. Upon successful completion of the course, the student will produce SQL commands that query and manipulate databases using DDL and DML. | C | | | | P | |
| • 3. Upon successful completion of the course, the student will choose the appropriate database design principles and create a working end-user database system that automates a traditional manual system. The system will include end-user documentation. | C | | | | P | |
| COMPB22 - Introduction to Systems Analysis and Design | | | | | | |
| • 1. Upon successful completion of this course, the student will be able to critically evaluate a real-world business problem and work it through the systems analysis phases. | | | | | P | |
| • 2. Upon successful completion of this course, the student will be able to create client deliverables by using the appropriate computer aided design tools. | | | | | P | |
| • 3. Upon successful completion of this course, the student will be able to identify those skills that will facilitate a professional end-user/stakeholder presentation. | | | | | P | |
| COMPB31 - CompTIA Network Security - Security+ | | | | | | |
| • The students will identify and analyze network security vulnerabilities. | | C | C | | P | |
| • The students will identify and analyze cryptography. | | | | | P | |
| COMPB32 - CompTIA Linux+ | | | | | | |
| • 1) Upon successful completion of this course, the student will be able to install Linux and execute common Linux commands. | | | | | P | P |
| • 2) Upon successful completion of this course, the student will be able to identify and apply file permissions and execute programmed shell scripts. | | | | | P | P |
| • 3) Upon successful completion of this course, the student will be able to identify and apply networking technologies, protocols, devices, services, performance utilities, and security concepts. | | | | | P | P |
| COMPB33 - CompTIA Networking Technologies - Network+ | | | | | | |
| • 1) Upon successful completion of this course, the student will be able to identify and describe networking technologies, protocols, addresses, devices, OSI layers, and troubleshooting tools. | | | | | P | P |
| • 2) Upon successful completion of this course, the student will be able to identify network cabling, virtualization, and cloud computing. | | | | | P | P |
| • 3) Upon successful completion of this course, the student will be able to identify network risk management, security vulnerabilities, and network performance and recovery practices. | | | | | P | P |
| COMPB34 - CompTIA A+ | | | | | | |
| • 1. Upon successful completion of this course, the student will be able to identify, disassemble, assemble, and troubleshoot various computer hardware components. | | | | | | P |
| • 2. Upon successful completion of this course, the student will be able to identify types of software, apply software configurations, and troubleshooting methodologies. | | | | | | P |
| • 3. Upon successful completion of this course, the student will be able to describe and apply various computer networking technologies, security practices, and security troubleshooting methodologies. | | | | | | P |
| • 4. Upon successful completion of this course, the student will be able to describe computer virtualization and cloud computing technologies. | | | | | | P |

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| COMPB35 - Digital Forensics | | | | | | |
| • 1. Upon successful completion of the course, the student will demonstrate the ability to analyze data on a compromised computer disk. | | | | | P | |
| • 2. Upon successful completion of the course, the student will be able to explain concepts and terminology used by Computer Forensics' Specialists. | | | | | P | |
| • 3. Upon successful completion of the course, the student will be able to identify and explain the rules and laws that govern digital evidence and digital evidence handling | | | | | P | |
| COMPB36 - Introduction to Cybersecurity: Ethical Hacking | | | | | | |
| • 1. Upon successful completion of the course, the student will be able to demonstrate the proper use of tools and methods a malicious actor will use to break into a computer or network. | | | | | P | |
| • 2. Upon successful completion of the course, the student will be able to apply defense mechanisms to computers and networks | | | | | P | |
| • 3. Upon successful completion of the course, the student will be able to apply safeguards for the World Wide Web. | | | | | P | |
| COMPB41 - Web Design: Design Tools | | | | | | |
| • 1. Upon successful completion of the course, the student will be able to create basic web sites and post them to a live web server using web authoring tools. | | | | | P | |
| • 2. Upon successful completion of the course, the student will be able to effectively use principles of good web design in evaluating and creating well designed web sites. | | | | | P | |
| • 3. Upon successful completion of the course, the student will be able to enhance the looks and communication of their web pages using images. | | | | | P | |
| • 4. Upon successful completion of the course, the student will be able to develop effective web communication using principles of interaction design. | | | | | P | |
| • 5. Upon successful completion of the course, the student will be able to create advanced and complex layouts using tables. | | | | | P | |
| COMPB42 - Web Design: HTML & CSS | | | | | | |
| • Create basic web-page elements using appropriate structure and coding techniques. | | C | C | | P | |
| • Design a web site that communicates effectively using good design principles and techniques. | | C | C | | P | |
| • Develop well-formed and valid HTML code using common text and HTML editors. | | C | C | | P | |
| • Manage, control and upload files on a web server using FTP software. | | C | C | | P | |
| • Integrate different kinds of media and images into web sites. | | C | C | | P | |
| • Diagnose and correct code errors in pages to ensure well-formed pages across platforms and browsers. | | C | C | | P | |
| COMPB43 - Web Design: JavaScript | | | | | | |
| • 1. Upon successful completion of the course, the student will be able to define, discuss and identify major scripting languages. | | C | | | P | |
| • 2. Upon successful completion of the course, the student will be able to develop web page scripts using structured coding techniques. | | | | | P | |
| • 3. Upon successful completion of the course, the student will be able to create cross-platform scripts using JavaScript. | | | | | P | |
| • 4. Upon successful completion of the course, the student will be able to develop interactive web pages using advanced coding techniques. | | | | | P | |
| • 5. Upon successful completion of the course, the student will be able to integrate external frameworks into web sites to enhance their function. | | | | | P | |
| • 6. Upon successful completion of the course, the student will be able to produce degradable designs using Cascading Style Sheets. | | | | | P | |
| COMPB48WE - Occupational Work Experience Education/Internship | | | | | | |
| • 1. Upon completion the student will be able to: Articulate the specific work experience objectives in Computer Science as described by employer and identify the various skills, knowledge and attitudes necessary to the accomplishment of those objectives. | | C | | | | |
| • 2. Upon completion the student will be able to: Demonstrate the acquisition of the various skills, knowledge and attitudes necessary for the completion of the work experience objectives in Computer Science and the ability to effectively meet employer's job expectations. | | C | | | | |
| • 3. Upon completion the student will be able to: Identify and analyze the application of acquired skills, knowledge, and attitudes to career opportunities for Computer Science. | | C | | | | |

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| COMPB94 - Web Design: PHP & MySQL | | | | | | |
| • 1. Upon successful completion of the course, the student will be able to configure a web server to run PHP. | | | | | | P |
| • 2. Upon successful completion of the course, the student will be able to develop basic PHP scripts using proper syntax. | | | | | | P |
| • 3. Upon successful completion of the course, the student will be able to create a persistent data login using sessions. | | | | | | P |
| • 4. Upon successful completion of the course, the student will be able to use MySQL and PHP to create a data-driven web application. | | | | | | P |
| • 5. Upon successful completion of the course, the student will be able to develop a complex web application using PHP, MySQL, HTML and CSS. | | | | | | P |