Missouri Business, Marketing, & Information Technology

Computer Programming

Computer Concepts 1	**1** Describe the impact of software on society 1.1
	2 Discuss legal/ethical issues related to computer programming and software development 1.2
	3 Describe the categories and evolution of programming languages 1.3
	4 Demonstrate an understanding of computer theory (e.g., bits, bytes, binary logic, memory, and storage) 1.4
	5 Apply the application environment/interface for the specific language being covered (e.g., JCreator, BlueJay, and Visual Studio) 1.5
	6 Explain the concept of security and its relationship to programming 1.6
	7 Identify components of the information system model (input, process, output, storage) 1.7
Logical Problem-Solving Skills 2	**1** Analyze a problem 2.1
	2 Determine the steps needed to solve a problem 2.2
	3 Create an algorithm to solve a problem 2.3
	4 Illustrate the problem solution using a storyboard, flowchart or pseudocode 2.4
	5 Build a program from a storyboard, flowchart, or pseudocode 2.5
	6 Explain how to create and integrate reusable component into a program 2.6
	7 Explain how a program is tested and accepted for release 2.7
	8 Document code. 2.8
Program Algorithms 3	**1** Use correct syntax and naming conventions of a given programming language 3.1
	2 Create a program using internal documentation 3.2
	3 Identify the use and limitations of different data types (integer, double, and constant) 3.3

	4 **Create programs that include:;;** 3.4 a Variables, data types, and constants 3.4.A b Counters and accumulators 3.4.B c Arithmetic expressions and assignment statements 3.4.C d User input 3.4.D e Input validation 3.4.E f Boolean expressions 3.4.F g Conditional statement 3.4.G h Iterations 3.4.H i Opening, writing, and reading from a data file 3.4.I j Producing formatted output 3.4.J k Use one or more student created functions that passes data to the function using parameters 3.4.K l Modular programing and implement classes 3.4.L
	5 **Identify type of errors (e.g.syntax, run-time and logic)** 3.5
	6 **Create a program with a standard graphic user interface (GUI) that includes: objects and menus; and a custom GUI** 3.6
	7 **Modify an existing program** 3.7
	8 **Create a program in collaboration with a team** 3.8
	9 **Describe and practice steps of troubleshooting and debugging** 3.9
Data Structure Concepts 4	**1** **Create a program using a list** 4.1
	2 **Create a program using one- and two-dimensional arrays** 4.2
	3 **Create a program using a sort routine** 4.3
	4 **Create file structures** 4.4
	5 **Describe database structures (e.g., fields, records, files, and tables)** 4.5
	6 **Write code to append, delete, and update a data structure** 4.6
	7 **Write code to search, sort, and query a data structure** 4.7
Additional Programming Concepts 5	**1** **Implement techniques for programming for efficiency (e.g., processing time, programmer time, etc.)** 5.1
	2 **create a user-friendly program (e.g., user testing, user experience, ect.)** 5.2

	3 Create programs with event-driven programming 5.3
	4 Demonstrate error catching/handling 5.4
	5 Compare object-oriented programming with structured programming 5.5
	6 Describe considerations for mobile application programming 5.6
	7 Identify accessibility considerations in programming 5.7
Prepare for Employment 6	1 Demonstrate working as a team 6.1
	2 Identify careers in the information technology field 6.2
	3 Demonstrate communication skills 6.3
	4 Discuss ethical behaviors in the workplace. 6.4
	5 Demonstrate interpersonal skills 6.5
	6 Exhibit leadership skills through a student organization (e.g.FBLA, PBL, ACM) 6.6