Computer Programming – AAS

Spring 2019 Outcomes

1. Demonstrate professionalism including presentation skills, utilizing research for problem solving, working independently and in teams, being accountable and meeting deadlines.
2. Analyze business problems and prepare program definitions for computerized solutions.
3. Create, document and implement computerized solutions using a variety of languages.
4. Apply testing and debugging methods to assure quality and workability of finished programs.
5. Solve problems using appropriate mathematical and/or scientific techniques.

**Course Outcomes**

CPTR1110 - Visual Basic Program I

1. Demonstrate application planning techniques.
2. Demonstrate industry standard graphical user interface design techniques.
3. Set the properties of an object.
4. Implement data types.
5. Understand the scope of both a variable and a named constant.
6. Code arithmetic expressions.
7. Demonstrate industry standard code development techniques.
8. Explain the difference between syntax and logic errors.
9. Demonstrate knowledge of control structures.
10. Utilize dialog boxes.
11. Demonstrate string manipulation techniques.
12. Utilize order of precedence rules.
13. Create compiled executable application files.
14. Adhere to documentation standards.
15. Test object-oriented event-driven applications.

CPTR1106 - Microcomputer Databases

1. Create database reports.
2. Create table relationships.
3. Define referential integrity.
4. Create database queries.
5. Manipulate database data.
6. Perform data import operations.
7. Create data entry forms.
8. Demonstrate database programming concepts.
9. Create database tables.
10. Create and manage a switchboard.
11. Create database macros.

CSCI1110 – Informatics

1. Analyze and evaluate various data transmission methods.
2. Analyze various Information Technology solutions for applicability in various environments.
3. Evaluate data security systems in relation to current legal and social implications.
4. Differentiate between authenticity and authority of different information sources.
5. Identify and select factual information to provide a potential solution to a problem.
6. Interpret and present data conclusions in an appropriate and logical manner for the audience.
7. Organize a small group to evaluate various solutions presented from the data.
8. Evaluate and understand data security methods in relation to legal and ethical requirements in selected regions of the world.
9. Articulate the impact of Information Technology on personal ethics.
10. Evaluate the impact of Information Technology on a chosen field of study.

CPTR1170 - Web Engineering I

1. Describe components of an URL.
2. Describe the process of obtaining an Internet domain address.
3. Describe the need for, and legal requirements of, Web site policies.
4. Describe layouts, structure, design principles, and considerations for well-designed Web sites.
5. Evaluate Web sites using principles of good format, structure, design, and programming practices.
6. Install and configure Web page programming tools.
7. Use current Web programming languages to create and maintain a Web page.
8. Incorporate an e-mail link on a Web page.
9. Incorporate internal and external hypertext links on a Web page.
10. Incorporate tables on a Web page.
11. Incorporate forms on a Web page.
12. Create client-side scripting code to handle error checking in Web forms.
13. Describe the security concerns of Web server administrators.
14. Configure Web server software.
15. Compare Web server operating systems and software.

CPTR1001 - Introduction To Programming and Scripting

1. Describe the features and syntax of a programming language.
2. Understand how software can be written to solve business problems.
3. Use debugging and testing to create error-free code.
4. Demonstrate industry standard code development techniques.
5. Develop logic structures.
6. Develop loop structures.
7. Develop control structures.
8. Understand datatypes.
9. Understand functions.
10. Create, update, and process data files.
11. Understand techniques required for security in computer programming.

CPTR1115 - COBOL Programming

1. Name the logic structures used in a structured program.
2. Describe the basic organization of the four COBOL divisions.
3. Understand the uses of switches, accumulators, and work area fields.
4. Explain how the record layout can be used to describe the related data.
5. Utilize condition names.
6. Use control structures in coding a COBOL program.
7. Explain the purpose of data validation.
8. Code a CALL to a subprogram.
9. Demonstrate industry standard code development techniques.
10. Understand all levels of table processing.
11. Differentiate single-level and multiple-level control breaks.
12. Describe the difference between a subscript and an index.
13. Code a COBOL SORT.
14. Explain indexed file organization.
15. Write code to post to a transaction record program.
16. Explain file matching and update logic for a sequential file.
17. Write a sequential file update program.
18. Create a transaction log report.
19. Explain file maintenance.
20. Write code to add, update, or delete a relative file record.

CPTR2242 - Java Programming

1. Be aware of structured and object-oriented programming design methodologies.
2. Understand the basic components of a Java program, including methods, special symbols, and identifiers.
3. Examine how a program evaluates arithmetic expressions.
4. Explore how to properly structure a program, including using comments to document a program.
5. Demonstrate how to import packages.
6. Explain type casting.
7. Use object and reference variables.
8. Utilize the class String.
9. Demonstrate how to use input and output dialog boxes in a program.
10. Use predefined and user-defined methods in a program.
11. Code control structures.
12. Utilize relational and logical operators.
13. Define modifiers.
14. Explore variables as parameters.
15. Create packages.
16. Demonstrate knowledge of the abstract data type (ADT).
17. Create one-dimensional and multidimensional arrays.
18. Test and debug Java programs.

4. Mathematics/Logical Reasoning

ENGL1101 - College Writing

1. Demonstrate the writing process through invention, organization, drafting, revision, editing and presentation.
2. Participate effectively in groups with emphasis on listening, critical and reflective thinking and responding.
3. Locate and evaluate information from diverse academic sources.
4. Synthesize information from diverse academic sources.
5. Construct logical and coherent arguments.
6. Use authority, point-of-view and individual voice and style in writing.
7. Respond critically via discussion.
8. Respond critically via writing.
9. Employ syntax and usage appropriate to academic disciplines and the professional world.
10. Select appropriate communication choices for specific audiences.
11. Use a discipline-appropriate style guide to responsibly credit and document information.

CPTR2230 - Structured Query Language

1. Create a subquery in a SQL statement.
2. Join multiple tables in a SQL query utilizing the WHERE clause.
3. Create group restrictions utilizing the GROUP BY and HAVING command in a SQL query.
4. Utilize the COUNT, SUM, MAX, and MIN statistical functions in a SQL query.
5. Specify query selection criteria utilizing the FROM and WHERE clauses.
6. Correct data errors and delete records in a table utilizing the UPDATE and DELETE commands.
7. View data in a table utilizing the SELECT command.
8. Specify the INSERT command in SQL to load data into tables.
9. Specify data types in SQL.
10. Utilize the CREATE TABLE and DROP TABLE SQL commands.
11. Use the ORDER BY command and DESC operator to sort results in a SQL query.
12. Describe integrity constraints and support.
13. Specify compound conditions in a SQL select query.
14. Utilize comparison operators in a SQL select query.

6 Credits Electives

1. CPTR
2. CSCI
3. CSEC
4. CTEC
5. CVNP
6. INTD
7. ITSS
8. WEBD

CPTR1129 - RPG Programming

1. Write RPG programs.
2. Compile programs.
3. Find errors and correct errors.
4. Produce reports.
5. Develop logic structures.
6. Perform calculations.
7. Create, change and delete data.
8. Perform CL commands.
9. Use operation codes.
10. Develop interactive screens.
11. Create, change, and delete data within multiple files.
12. Pass parameters.
13. Perform level breaks within a program.
14. Develop physical files.

CSCI1121 - Computer Science I

1. Design algorithms to solve problems.
2. Understand the syntax of a high-level programming language.
3. Produce correct, clear, and concise documentation for programs.
4. Demonstrate effective debugging techniques.
5. Construct programs utilizing elementary data structures.
6. Determine proper control structures for implementation of problem solutions.
7. Construct algorithms using logical and relational operators.
8. Manage program input from multiple sources.
9. Direct program output to multiple destinations.
10. Code programs that demonstrate the use of selection structures.
11. Write programs that include proper use of looping structures.
12. Write programs utilizing object oriented design.

3 credits COMM

1. COMM1120 - Introduction to Public Speaking
2. COMM1130 - Small Group Communication
3. COMM1140 - Interpersonal Communication

CPTR2000 - Mobile Application Development

1. Explain the differences between desktop and mobile application development.
2. Create effective user interfaces for mobile devices.
3. Demonstrate effective use of documentation, tutorials and online resources to learn and use mobile development technologies.
4. Analyze peer-created code for constructive feedback and personal code improvement.
5. Explain privacy issues related to mobile application development.
6. Explain the process for deployment of mobile applications.
7. Explain the requirements of providing mobile commerce services.
8. Design mobile applications that make use of location services.
9. Demonstrate effective use of mobile technologies to build mobile applications.

3 credits MnTC

CPTR2238 - Database Integration

1. Create multiple databases
2. Maintain existing databases
3. Specify requirements for gathering data
4. Describe data integrity
5. Use specific database software and programming languages
6. Create queries
7. Demonstrate data migration and integration
8. Demonstrate data testing procedures
9. Perform basic database administration tasks
10. Describe the database design process of producing an efficient database
11. Interpret data from queries and reports