Assessment Plan for CS and CIS Degree Programs
Computer Science Dept.
Texas A&M University - Commerce

Program Objective #1 (PO1): Students will develop skills in problem analysis.
Program Objective #2 (PO2): Students will develop problem-solving skills.
Program Objective #3 (PO3): Students will develop solution-modeling skills.
Program Objective #4 (PO4): Students will develop solution-implementation skills.
Program Objective #5 (PO5) : Students will develop strong communication skills.
Program Objective #6 (PO6) : Learn common algorithms and how to analyze them
for efficiency.
Program Objective #7 (PO7) : Learn theory behind modern computer technologies.

Outcome Description
Program Objective #1 (PO1): Students will develop skills in problem analysis.
Assessment Method
Assessment will be measured through testing the following course objectives:

CSCI 270
(CO270.2) Be able to use the linked list data structure.
(CO270.3) Be able to use the stack data structure.
(CO270.4) Be able to use the queue data structure.
(CO270.8) Be able to use the binary tree data structure and a hash table.

CSCI 359 Systems Analysis and Design
(CO359.2) Explain the purpose and activities of the systems development life cycle
phases.

CSCI 340 Introduction to Database Systems
(CO340.6) Describe, define and apply the major components of the relational database
model.
(CO340.8) Describe the fundamental data structures, access methods and storage devices
needed for physical database design.

CSCI 380
(CO380.1) Creation and manipulation of web graphics using popular software tools.
(CO380.2) Creation of Web Pages using XHTML
(CO380.3) Application of cascading style sheets

CSCI 428 Object Oriented Porgramming
(CO428.1) Software Engineering Basic.
(CO428.6) UML

CSCI 431 JAVA Programming
(CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440
(CO440.6)Build user-friendly, aesthetic, and functional interfaces for application software projects.
(CO440.8)Develop and implement a system application project in an object-oriented programming language using traditional process model diagrams as a guide.

CSCI 470
(CO470.1)Identify and explain the major components of the relational data model.
(CO470.2)Utilize structured query language (SQL) to define and manipulate database objects in the interactive mode.
(CO470.4)Develop an application program to access databases with the Java programming language.
(CO470.9)Complete a project to implement database management software or related tools.

Program Objective #2 (PO2): Students will develop problem-solving skills.
Assessment will be measured through testing the following course objectives:

CSCI 152 Programming Fundamentals II
(CO152.1) Be able to use one-dimensional arrays.
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(CO152.2) Be able to use at least one (preferably at least two) sorting technique(s) to
        rearrange data in an array.
(CO152.3) Be able to search an array using both linear and binary searching techniques.
(CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 233 Information Systems Programming
(CO233.2) Design and develop a basic report program.
(CO233.3) Enhance a basic report program to process grouped data and summarize results.
(CO233.4)Learn the programming constructs and develop programs to create and process arrays.
(CO233.5) Develop a program to capture, process and store object data (class instance) into a file.
(CO233.6) Design and develop a program to process a sequentially-organized file.
(CO233.7) Develop a program to access data from a database.
(CO233.8) Design and develop a basic input form to capture data for an application.
(CO233.9) Design and develop pages for a basic online application (team project).

CSCI 241 Assembly Language and Computer Organization
(CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language programming (Unconditional jumps, flags, subroutines, Stacks)

CSCI 270 Data Structure and Algorithms
(CO270.1) Be able to use address variables.
(CO270.9)Be able to integrate the use of container classes (user-created or STL) into a moderately complex program solution.

CSCI 431 JAVA Programming
(CO431.7) Employ exception-handling programming techniques.
(CO431.8) Utilize file input and output procedures for sequential and random access.
(CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development
(CO440.9)Connect a database and interface to software project.

CSCI 470 Database Programming
(CO470.4)Develop an application program to access databases with the Java programming language.

Program Objective #3 (PO3): Students will develop solution-modeling skills.
Assessment will be measured through testing the following course objectives:

CSCI 359 Systems Analysis and Design
(CO359.6) Understand and model system entities and data stores
(CO359.7) Understand and model system processes, events, and data flows within a system
(CO359.8) Understand and model classes of data within a system.
(CO359.9) Understand concepts relating to various models, tools, and techniques used in system analysis and design.

CSCI 340 Introduction to Database Systems
(CO340.1) Model a single entity, define and access a single entity database.
(CO340.2) Model a one-to-many (1:m) relationship between two entities, define a 1:m database, and process a 1:m database .
(CO340.3) Model a m:m relationship between two entities, define and process a m:m database.
(CO340.4) Create a well-formed, high fidelity data model.

CSCI 440 Applied Software Project Development
(CO440.2)Use Microsoft Visio to create, edit, and publish to a web site traditional process model diagrams.

(CO440.3)Use Microsoft Visio to create, edit, and publish to a web site Entity-Relationship diagrams.
(CO440.7)Create a database using an Entity-Relationship diagram.

Program Objective #4 (PO4): Students will develop solution-implementation skills.
Assessment will be measured through testing the following course objectives:

CSCI 152 Programming Fundamentals II
(CO152.4) Be able to use multiple-dimensional arrays.
(CO152.5) Be able to use structs.
(CO152.6) Be able to use classes.

CSCI 233 Information System Programming
(CO233.2) Design and develop a basic report program.
(CO233.3) Enhance a basic report program to process grouped data and summarize results.
(CO233.6) Design and develop a program to process a sequentially-organized file.
(CO233.7) Develop a program to access data from a database.

CSCI 241 Machine Language and Computer Organization
(CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language programming (Unconditional jumps, flags, subroutines, Stacks)
CO241.4) I/O devices; memory mapped I/O; Interrupts ; Arrays, addressing modes and Floating Point Instructions

CSCI 270
(CO270.5) Be able to create and use templates.
(CO270.6) Be able to design, code, and use recursive functions.

CSCI 359 Systems Analysis and Design
(CO359.5) Identify and understand system inputs and outputs.

CSCI 340 Introduction to Database Systems
(CO340.7) Learn and apply the Structured Query Language (SQL) for database definition and manipulation.

CSCI 380 Web Programming and Interface Design
(CO380.1) Creation and manipulation of web graphics using popular software tools.
(CO380.2) Creation of Web Pages using XHTML
(CO380.3) Application of cascading style sheets
(CO380.4) Client Side Scripting using JavaScript
(CO380.5) Database creation and Web Integration using server side scripting.
(CO380.6) Utilize Ajax and Web 2.0 technologies to create Rich Internet Applications

CSCI 431 JAVA Programming
(CO431.1) Code, compile and run a Java program.
(CO431.2) Master programming techniques for console input and output.
(CO431.3) Apply logical constructs for branching and loops.
(CO431.7) Employ exception-handling programming techniques.
(CO431.8) Utilize file input and output procedures for sequential and random access.
(CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development
(CO440.1) Develop and maintain an informational and project repository web site for an application project.

CSCI 470 Database Programming
(CO470.2)Utilize structured query language (SQL) to define and manipulate database objects in the interactive mode.
(CO470.5)Design a database-supported Web site.
(CO470.6)Develop a database-supported Web site utilizing HTML and JavaServer Pages.
(CO470.7)Apply XML for Data Exchange.

Program Objective #5 (PO5) : Students will develop strong communication skills.
Assessment will be measured through testing the following course objectives:

CSCI 359 Systems Analysis and Design
(CO359.3) Understand project management techniques.

CSCI 440 Applied Software Project Development
(CO440.4)Develop and use a team constitution.
(CO440.5)Solve team conflicts in a project building environment.
(CO440.10)Create system documentation including help files, diagrams, and programming code.
(CO440.11)Present the final project to an audience consisting of faculty, peers, administrators, and business leaders.
(CO440.12)Evaluate other team members based upon specific criteria. (Derived based on team member evaluations.)

Program Objective #6 (PO6) : Learn common algorithms and how to analyze them for efficiency.
Assessment will be measured through testing the following course objectives:

CSCI 152
(CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 270
(CO270.7) Understand Big-O notation (for algorithm efficiency): what it means, how it is determined, and why it should be considered in effective programming.
(CO270.8) Be able to use the binary tree data structure and a hash table.

Program Objective #7 (PO7) : Learn theory behind modern computer technologies.
Assessment will be measured through testing the following course objectives:

CSCI 241
(CO241.1) Understand various numbering systems and conversions.
(CO241.3) Understand Computer Organization: registers, transfers, machine cycles.
(CO241.4) Understand I/O devices, memory mapped I/O; Interrupts.

CSCI 428 Object Oriented Programming
(CO428.1) Software Engineering Basic.
(CO428.2) Classes basics/advanced
(CO428.6) UML