Assessment Plan for the CS Degree Program
FY 2009-2010
Fall 09 Sp 10
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): Understand the concepts used in 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 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 359 Systems Analysis and Design
(CO359.2) Explain the purpose and activities of the systems development life cycle phases.

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.
(CO470.3)Incorporate procedural extensions to SQL for maintaining database tables.
(CO470.4)Develop an application program to access databases with the Java programming language.
(CO470.8)Perform system and database administration to implement software to support database application development.
(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.
(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 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.
(CO270.8)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 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.
(CO340.5) Describe the process of normalization and distinguish between different
normal forms.

CSCI 359 Systems Analysis and Design
(CO359.5) Understand and model system entities and data stores.
(CO359.6) Understand and model system processes, events, and data flows within a
system
(CO359.7) Understand and model classes of data within a system.
(CO359.8) Understand concepts relating to various models, tools, and techniques used in
system analysis and design.

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 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 design, code, and use recursive functions.

CSCI 359 Systems Analysis and Design
(CO359.4) 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.
(CO340.9) Develop a procedural language application program to update a database table.

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 ethics and strong communication skills.
Assessment will be measured through testing the following course objectives:

CSCI 251 Introduction to Information Security, Law, and Ethics
(CO251.1) Define ethics, morality, and moral system and recognize the distinction between ethical theory and professional ethics.
(CO251.2)Summarize the basic concepts of relativism, utilitarianism, and deontological theories.
(CO251.3)Use methods and tools of analysis to analyze an argument to identify premises and conclusion and illustrate the use of example, analogy, and counter-analogy in an ethical argument.
(CO251.4) Identify the strengths and weaknesses of relevant professional codes as expressions of professionalism and guides to decision-making.
(CO251.5) Summarize the legal bases for the right to privacy and freedom of expression in one's own nation and how those concepts vary from country to country.
(CO251.6) Identify the professional's role in security and the tradeoffs involved.
(CO251.7) Outline the technical basis of viruses and denial-of-service attacks and enumerate techniques to combat the same.
(CO251.8) Distinguish among patent, copyright, and trade secret protection and explain how patent and copyright laws may vary internationally.
(CO251.9) Explain the various U.S. legislation and regulations that impact technology and the disadvantages and advantages of free expression in cyberspace.
(CO251.10) Explain why computing/network access is restricted in some countries.
(CO251.11) Define a computer use policy with enforcement measures.

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.)

79% 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
(CO270.6) Understand Big-O notation (for algorithm efficiency): what it means, how it is determined, and why it should be considered in effective programming.
(CO270.7) 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

CSCI 430 Operating Systems
(CO430.1) Understand the concepts, structures, and mechanisms of operating systems.
(CO430.2) Understand memory management, virtual memory, swapping, paging algorithms, segmentation, and clock paging policies.
(CO430.3) Understand multiprogramming and multiuser capabilities, and how operating systems evolved.
(CO430.4) Understand process management, process states and process and thread structures and concepts.
(CO430.5) Understand concurrent processes and associated deadlock prevention, avoidance, detection, recovery methods, and the use of semaphores.
(CO430.6) Learn specific design decisions and architectures used in modern operating systems.

CSCI 359 Systems Analysis and Design
(CO359.1) Understand concepts relating to different types of information systems.