

Assessment for the CS Degree Program  
FY 2011-2012  
Fall 11 - Spring 12  
Computer Science Dept.  
Texas A&M University - Commerce

**85% 81%** Program Objective #1 (PO1): Students will develop skills in problem analysis.  
**81% 82%** Program Objective #2 (PO2): Students will develop problem-solving skills.  
**86% 83%** Program Objective #3 (PO3): Students will develop solution-modeling skills.  
**85% 82%** Program Objective #4 (PO4): Students will develop solution-implementation skills.  
**94% 85%** Program Objective #5 (PO5): Students will develop strong communication skills.  
**81% 82%** Program Objective #6 (PO6): Learn common algorithms and how to analyze them for efficiency.  
**92% 88 %** Program Objective #7 (PO7): Understand the concepts used in modern computer technologies.

**Outcome Description**

**85% 81%** Program Objective #1 (PO1): Students will develop skills in problem analysis.

**Assessment Method**

Assessment will be measured through testing the following course objectives:  
The first percentile is Fall 2011 and the second percentile is Spring 2012.

CSCI 270 Data Structures

77% 77% (CO270.2) Be able to use the linked list data structure.  
81% 80% (CO270.3) Be able to use the stack data structure.  
80% 79% (CO270.4) Be able to use the queue data structure.  
79% 90% (CO270.8) Be able to use the binary tree data structure and a hash table.

CSCI 340 Introduction to Database Systems

80% 80% (CO340.6) Describe, define and apply the major components of the relational database model.  
70 % n/a (CO340.8) Describe the fundamental data structures, access methods and storage devices needed for physical database design.

CSCI 359 Systems Analysis and Design

90% 82% (CO359.2) Explain the purpose and activities of the systems development life cycle phases.

CSCI 380 Web Programming and Interface Design

0% 88% (CO380.1) Creation and manipulation of web graphics using popular software tools.  
0% 95% (CO380.2) Creation of Web Pages using XHTML  
0% 94% (CO380.3) Application of cascading style sheets

CSCI 428 Object Oriented Programming

94% 83% (CO428.1) Software Engineering Basic.  
96% 87% (CO428.6) UML

CSCI 431 JAVA Programming

92% n/a (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

CSCI 440 Applied Software Project Development

100% 82% (CO440.6) Build user-friendly, aesthetic, and functional interfaces for application software projects.

76% 84% (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 Database Programming

0% 90% (CO470.1) Identify and explain the major components of the relational data model.

0% 92% (CO470.2) Utilize structured query language (SQL) to define and manipulate database objects in the interactive mode.

0% 88% (CO470.3) Incorporate procedural extensions to SQL for maintaining database tables.

0% 84% (CO470.4) Develop an application program to access databases with the Java programming language.

0% 90% (CO470.8) Perform system and database administration to implement software to support database application development.

0% 84% (CO470.9) Complete a project to implement database management software or related tools.

#### **81% 82% Program Objective #2 (PO2): Students will develop problem-solving skills.**

Assessment will be measured through testing the following course objectives:

The first percentile is Fall 2009 and the second percentile is Spring 2010.

#### CSCI 152 Programming Fundamentals II

75% 76% (CO152.1) Be able to use one-dimensional arrays.

83 % 75% (CO152.2) Be able to use at least one (preferably at least two) sorting technique(s) to rearrange data in an array.

80% 76% (CO152.3) Be able to search an array using both linear and binary searching techniques.

80% 88% (CO152.7) Be able to design and code a program which includes a user-created class.

#### CSCI 241 Assembly Language and Computer Organization

82% 86% CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language programming (Unconditional jumps, flags, subroutines, Stacks ).

#### CSCI 270 Data Structure and Algorithms

78% 77% (CO270.1) Be able to use address variables.

79% 90% (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

71% n/a (CO431.7) Employ exception-handling programming techniques.

81% n/a (CO431.8) Utilize file input and output procedures for sequential and random access.

92% n/a (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

#### CSCI 440 Applied Software Project Development

90% 82% (CO440.9) Connect a database and interface to software project.

#### CSCI 470 Database Programming

n/a 84% (CO470.4) Develop an application program to access databases with the Java programming language.

#### **86% 83% Program Objective #3 (PO3): Students will develop solution-modeling skills.**

Assessment will be measured through testing the following course objectives:

The first percentile is Fall 2009 and the second percentile is Spring 2010.

#### CSCI 340 Introduction to Database Systems

90% 84% (CO340.1) Model a single entity, define and access a single entity database.

86% 80% (CO340.2) Model a one-to-many (1:m) relationship between two entities, define a 1:m database, and process a 1:m database .

75% 74% (CO340.3) Model a m:m relationship between two entities, define and process a m:m database.

90% 75% (CO340.4) Create a well-formed, high fidelity data model.

75% 77% (CO340.5) Describe the process of normalization and distinguish between different normal forms.

#### CSCI 359 Systems Analysis and Design

93% 91% (CO359.5) Understand and model system entities and data stores.

92% 92% (CO359.6) Understand and model system processes, events, and data flows within a system.

96% 90% (CO359.7) Understand and model classes of data within a system.

86% 82% (CO359.8) Understand concepts relating to various models, tools, and techniques used in system analysis and design.

#### CSCI 440 Applied Software Project Development

90% 85% (CO440.2) Use Microsoft Visio to create, edit, and publish to a web site traditional process model diagrams.

84% 84% (CO440.3) Use Microsoft Visio to create, edit, and publish to a web site Entity-Relationship diagrams.

80% 85% (CO440.7) Create a database using an Entity-Relationship diagram.

#### **85% 82% Program Objective #4 (PO4): Students will develop solution-implementation skills.**

Assessment will be measured through testing the following course objectives:

The first percentile is Fall 2009 and the second percentile is Spring 2010.

#### CSCI 152 Programming Fundamentals II

76 % 80% (CO152.4) Be able to use multiple-dimensional arrays.

77% 78% (CO152.5) Be able to use structs.

76% 77% CO152.6) Be able to use classes.

#### CSCI 241 Machine Language and Computer Organization

82% 86% (CO241.2) Concepts of Machine Instructions, Assembly and linking, assembly language programming (Unconditional jumps, flags, subroutines, Stacks ).

83% 79% (CO241.4) I/O devices; memory mapped I/O; Interrupts ; Arrays, addressing modes and Floating Point Instructions.

#### CSCI 270 Data Structures

77% n/a (CO270.5) Be able to design, code, and use recursive functions.

#### CSCI 340 Introduction to Database Systems

75% 86% (CO340.7) Learn and apply the Structured Query Language (SQL) for database definition and manipulation.

85% 72% (CO340.9) Develop a procedural language application program to update a database table.

#### CSCI 359 Systems Analysis and Design

93% 95% (CO359.4) Identify and understand system inputs and outputs.

### CSCI 380 Web Programming and Interface Design

- 0% 88% (CO380.1) Creation and manipulation of web graphics using popular software tools.
- 0% 95% (CO380.2) Creation of Web Pages using XHTML
- 0% 94% (CO380.3) Application of cascading style sheets
- 0% 89% (CO380.4) Client Side Scripting using JavaScript
- 0% 93% (CO380.5) Database creation and Web Integration using server side scripting.
- 0% 91% (CO380.6) Utilize Ajax and Web 2.0 technologies to create Rich Internet Applications

### CSCI 431 JAVA Programming

- 100% n/a (CO431.1) Code, compile and run a Java program.
- 94% n/a (CO431.2) Master programming techniques for console input and output.
- 93% n/a (CO431.3) Apply logical constructs for branching and loops.
- 71% n/a (CO431.7) Employ exception-handling programming techniques.
- 81% n/a (CO431.8) Utilize file input and output procedures for sequential and random access.
- 92% n/a (CO431.9) Use the Swing library to develop programs with graphical user interfaces.

### CSCI 440 Applied Software Project Development

- 100% 90% (CO440.1) Develop and maintain an informational and project repository web site for an application project.

### CSCI 470 Database Programming

- 0% 92% (CO470.2) Utilize structured query language (SQL) to define and manipulate database objects in the interactive mode.
- 0% 90% (CO470.5) Design a database-supported Web site.
- 0% 81% (CO470.6) Develop a database-supported Web site utilizing HTML and JavaServer Pages.
- 0% n/a (CO470.7) Apply XML for Data Exchange.

### **89% 85% Program Objective #5 (PO5) : Students will develop ethics and strong communication skills.**

Assessment will be measured through testing the following course objectives:

The first percentile is Fall 2009 and the second percentile is Spring 2010.

### CSCI 251 Introduction to Information Security, Law, and Ethics

- 89% 81% (CO251.1) Define ethics, morality, and moral system and recognize the distinction between ethical theory and professional ethics.
- 86% 81% (CO251.2) Summarize the basic concepts of relativism, utilitarianism, and deontological theories.
- 78% 81% (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.
- 92% 81% (CO251.4) Identify the strengths and weaknesses of relevant professional codes as expressions of professionalism and guides to decision-making.
- 88% 82% (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.
- 86% 82% (CO251.6) Identify the professional's role in security and the tradeoffs involved.
- 88% n/a (CO251.7) Outline the technical basis of viruses and denial-of-service attacks and enumerate techniques to combat the same.
- 82% n/a (CO251.8) Distinguish among patent, copyright, and trade secret protection and explain how patent and copyright laws may vary internationally.
- 89% n/a (CO251.9) Explain the various U.S. legislation and regulations that impact technology and the disadvantages and advantages of free expression in cyberspace.
- 90% n/a (CO251.10) Explain why computing/network access is restricted in some countries.
- 88% n/a (CO251.11) Define a computer use policy with enforcement measures.

### CSCI 359 Systems Analysis and Design

92% 90% (CO359.3) Understand project management techniques.

CSCI 440 Applied Software Project Development

90% 92% (CO440.4) Develop and use a team constitution.

96% 85% (CO440.5) Solve team conflicts in a project building environment.

90% 86% (CO440.10) Create system documentation including help files, diagrams, and programming code.

100% 89% (CO440.11) Present the final project to an audience consisting of faculty, peers, administrators, and business leaders.

96% 88% (CO440.12) Evaluate other team members based upon specific criteria. (Derived based on team member evaluations.)

**81% 82% Program Objective #6 (PO6) : Learn common algorithms and how to analyze them for efficiency.**

Assessment will be measured through testing the following course objectives:

The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 152 Programming Fundamentals II

80% 88% (CO152.7) Be able to design and code a program which includes a user-created class.

CSCI 270 Data Structures

75% 75% (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.

88% n/a (CO270.7) Be able to use the binary tree data structure and a hash table.

**92% 88% Program Objective #7 (PO7) : Learn theory behind modern computer technologies.**

Assessment will be measured through testing the following course objectives:

The first percentile is Fall 2009 and the second percentile is Spring 2010.

CSCI 241 Machine Language and Computer Organization

94% 96% (CO241.1) Understand various numbering systems and conversions.

90% 89% (CO241.3) Understand Computer Organization: registers, transfers, machine cycles.

83% 79% (CO241.4) Understand I/O devices, memory mapped I/O; Interrupts.

CSCI 428 Object Oriented Programming

94% 83% (CO428.1) Software Engineering Basic.

98% 86% (CO428.2) Classes basics/advanced

96% 87% (CO428.6) UML

CSCI 430 Operating Systems

0% 92% (CO430.1) Understand the concepts, structures, and mechanisms of operating systems.

0% 80% (CO430.2) Understand memory management, virtual memory, swapping, paging algorithms, segmentation, and clock paging policies.

0% 92% (CO430.3) Understand multiprogramming and multiuser capabilities, and how operating systems evolved.

0% 84% (CO430.4) Understand process management, process states and process and thread structures and concepts.

0% 95% (CO430.5) Understand concurrent processes and associated deadlock prevention, avoidance, detection, recovery methods, and the use of semaphores.

0% 88% (CO430.6) Learn specific design decisions and architectures used in modern operating systems.

CSCI 359 Systems Analysis and Design

88% 90% (CO359.1) Understand concepts relating to different types of information systems.