2011-2012 Assessment for Master's Degree Program
Fall 2011 - Spring 2012
Computer Science Dept.
Texas A&M University - Commerce

79% 86% Program Objective #1 (PO1):Students will be able to demonstrate a broad knowledge of Computer Science which includes data structures, operating systems, computer programming skills, computer organization, algorithm design, and automata theory.

83% 80%% Program Objective #2 (PO2): Students will gain a substantial knowledge of one of the following Computer Science specialties: Database, Networking, Artificial Intelligence, Information Security..

83% 79% Program Objective #3 (PO3): Students will demonstrate the ability to recognize, design and implement efficient software solutions to problems.

83% N/A Program Objective #4 (PO4): Students will demonstrate knowledge and understanding of professional ethics and responsible behavior.

86% 74% Program Objective #5 (PO5): Students will demonstrate the ability to communicate effectively and to work as a team.

Program Objective #6 (PO6)**:** Students will become successful professionals able to gain Employment and/or to be accepted into a Computer Science Ph.D. program.

79% 86%Program Objective#1 (PO1): Students will be able to demonstrate a broad knowledge of Computer Science which includes data structures, operating systems, computer programming skills, computer organization, algorithm design, and automata theory.

CSCI 515 Fundamental of Programming
84% 81% (CO515.1): To understand the internal representation of the various data types.
71% 70% (CO515.2): To examine the internal representation of two and three dimension arrays in C/C++.
62% 58% (CO515.3): To understand dynamic memory allocation, parameter passing, the use of pointers.

CSCI 516 Fundamental Concepts of Computer and Machine Organization
79% 82% (CO516.1) Numbering systems and conversions, Boolean functions.
85% 88% (CO516.2) Intro to Computer Organization: design logic; digital diagrams, and basic circuits and gates, and the link between Boolean functions, circuits, processor and Micro code.
84% 88% CO516.3) Concepts of Machine Instructions, Assembly and linking, common interrupts.
85% 82% (CO516.4): Concepts of Jumps, flags, subroutines, procedures, stacks, stack parameters and frames..
90% 81% (CO516.5): Arrays, addressing modes and Floating Point memory management, indirect addressing.
88% 87% (CO516.6): Advanced procedures, local variables, stack parameters, strings.

CSCI 520 Information Structure and Algorithm Analysis.
61% 60% (CO520.1): To understand the concept of sparse matrices, stack and queues.
67% 66% (CO520.2): To examine the differences between linear and linked representation of stacks, queues, and ordered data.
64% 60% (CO520.3): To understand and implement tree structures and to compare various sorting algorithms.

CSCI528 Object Oriented Methods
90% 100% (CO528.1): Software Engineering Basics.

CSCI 530 Operating Systems
83% n/a (CO530.1) Understand the concepts, structures, and mechanisms of operating systems.
82% n/a (CO530.2) Understand memory management, virtual memory, swapping, paging algorithms, segmentation, and clock paging policies.
81% n/a (CO530.5) Understand concurrent processes and associated deadlock prevention, avoidance, detection, recovery methods, and the use of semaphores.

CSCI 532 Algorithm Design
80% 79% (CO532.1): To teach students how to analyze algorithms in order to determine their calculation complexity in the terms of Big Oh, Big theta and Omega. Recursions.
78% 75% (CO532.2): To teach sorting algorithms and their application: Insertion, Merge, Quick, and Shell Sort algorithms.
85% 75% (CO532.3): Probabilistic Analysis and Randomized algorithms and their applications to CS- Hiring Algorithm, Bins and Balls problems; Birthday paradox, Longest Streaks.
85% 77% (CO532.4): Binary search trees and optimal binary search trees, and their applications to large code development.
78% 79% (CO532.5): Dynamic programming problem- line scheduling, matrix chain multiplication, longest common subsequence and their practical applications.
86% 81% (CO532.6): Introduction to greedy algorithms – an activity selection problem and it application to resources planning.

CSCI 540 Computer Architecture
0% 85% (CO540.1): General purpose machines from different views. Instruction sets and classification of computers.
0% 85% (CO540.2): Cost and performance of a computer: evaluation metrics, Amdahl's law, principle of locality, and benchmarks.
0% 87% (CO540.3): Cache and memory organization: cache mapping and replace strategies, virtual memory and cache coherence.
0% 82% (CO540.4): Pipelining: performance issues, and pipelining hazards.
0% 86% (CO540.5): I/O system: hard drive, RAID technology, I/O performance and benchmarks.

CSCI 549 Automata Theory
0% 70% (CO549.1): Understand the concept of languages and recursive definitions
0% 86% (CO549.8): Construct a context free grammar to define a context free language
0% 72% (CO549.11): Construct a push down automata for a language
0% 80% (CO549.12): Design and construct a Turing machine for any language
0% 85% (CO549.13): Design and construct a LR(1) parser for SmallG language

83% 80%Program Objective#2 (PO2): Students will gain a substantial knowledge of one of the following Computer Science specialties: Database, Networking, Artificial Intelligence, Information Security, Computer Engineering.
Assessment will be measured through testing the following course objectives.

CSCI 525 Introduction to Local Area Networking
78% 72% (CO525.1): To define and understand basic Data Communications, networking topologies, the OSI Model and the IEEE 802 standards.

CSCI 526 Databases Systems
81% 75% (CO526.1): Obtain current status of the state-of-the-art database design methodology in industry and academics.
80% 80% (CO526.5): Write SQL programs for effective data definition and manipulation.
78% 80% (CO526.6): Develop ER diagrams for logical design of database systems.
92% 90% (CO526.7): Implement a small scale database development project using commercially available DBMS tools.

CSCI 534 Networking II Routers and Switches
85% 76% (CO534.1): Using subnets and routing protocols, design and configure a router network.
86% 83% (CO534.2): Design and configure a switched network and VLANs.
83% 85% (CO534.3): Understand the concepts of an Access Control List and learn how to configure a router for ACLs.

CSCI 538 Artificial Intelligence
86% n/a (CO538.1): To learn about general concepts in the field of artificial intelligence.
78% n/a (CO538.2): To learn about the current fields of research in artificial intelligence.
82% n/a (CO538.3): To work on an on-going class project to create a computer program that learns from its users.

CSCI 539 Expert Systems
n/a n/a (CO539.1):To learn about the general concepts and deployment of expert systems.
n/a n/a (CO539.2): To create an expert systems project using a pre-developed software tool (environment) or in any language of your choice.

CSCI 553 Networking III – Unix Based Networks n/a n/a (CO553.5): Become familiar with sockets, including programming both connection-oriented TCP and connectionless UDP sockets.
n/a n/a (CO553.6): Be able to create simple TCP Client/Server applications using sockets in a High-level language/toolbox such as Java, Perl, Python or C++.

CSCI 563 Fundamentals of Information Security & Assurance
84% (CO 563.1): State the basic concepts in information security, including security policies, security models, and various security mechanisms.
84% (CO563.2): Understand the issues of network communications such as service, confidentiality, authentication, reliability, access control, and availability.
80% (CO563.3): State threats and sources of attacks in network security.
n/a n/a (CO563.4): Explain how to use cryptography to protect information and how to choose an appropriate encryption method.
n/a n/a (CO563.5): State main strategies to secure Windows and Linux computers.
n/a n/a (CO563.6): Understand limitation of the current security technology and able to choose proper security mechanisms.

CSCI 581 Computer and Network Security
n/a n/a (CO581.1): Students will be able to describe and discuss information security and network security basics.
n/a n/a (CO581.2): Students will be able to describe and discuss cryptography basics.
n/a n/a (CO581.3): Students will be able to describe and discuss authentication in network applications.
n/a n/a (CO581.4): Students will be able to describe and discuss electronic mail security.
n/a n/a (CO581.5): Students will be able to describe and discuss IP security.

n/a n/a (CO581.6): Students will be able to describe and discuss network security applications that implement the above capabilities.

83% 78% Objective#3 (PO3): Students will demonstrate the ability to recognize, design and implement efficient software solutions to problems.

Assessment will be measured through testing the following course objectives.

CSCI 520 Information Structure and Algorithm Analysis.
61% 60% (CO520.1): To understand the concept of sparse matrices, stack and queues.
67% 66%(CO520.2): To examine the differences between linear and linked representation of stacks, queues, and ordered data.
64% 60%(CO520.3): To understand and implement tree structures and to compare various sorting algorithms.

CSCI527 Advanced Databases and Data Mining
80% 50%(CO527.1): Understand current status of the state-of-the-art data mining methodology in industry and academics.
85% n/a (CO527.3): Learn and use effective tools for web navigation and program integration management.
95% 80% (CO527.5): Construct programs for capturing association rules.
92% 50%(CO527.6): Write programs for trend analysis using statistical data mining techniques.

CSCI 528 Object Oriented Methods
92% 88% (CO528.2): Classes basics/advanced.
85% 78% (CO528.3): Overloading.
92% 67% (CO528.4): Polymorphism/Virtual function.
92% 78% (CO528.5): Template, Exception.
95% 83% (CO528.6): UML.

CSCI 532 Algorithm Design
80% 79% (CO532.1): To teach students how to analyze algorithms in order to determine their calculation complexity in the terms of Big Oh, Big theta and Omega. Recursions.
78% 75% (CO532.2): To teach sorting algorithms and their application: Insertion, Merge, Quick, and Shell Sort algorithms.
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78% 79% (CO532.5): Dynamic programming problem- line scheduling, matrix chain multiplication, longest common subsequence and their practical applications.
86% 81% (CO532.6): Introduction to greedy algorithms – an activity selection problem and it application to resources planning.

CSCI 581 Computer and Network Security
n/a n/a (CO581.2): Students will be able to describe and discuss cryptography basics.

83% N/A % Objective #4 (PO4): Students will demonstrate knowledge and understanding of professional ethics and responsible behavior.

CSCI 563 Fundamentals of Information Security & Assurance
84% n/a (CO 563.1): State the basic concepts in information security, including security policies, security models, and various security mechanisms.
84% n/a (CO563.2): Understand the issues of network communications such as service, confidentiality, authentication, reliability, access control, and availability.
80% n/a (CO563.3): State threats and sources of attacks in network security.

CSCI 581 Computer and Network Security
n/a n/a (CO581.1): Students will be able to describe and discuss information security and network security basics.

86% 74% Objective #5 (PO5): Students will demonstrate the ability to communicate effectively and to work as a team.

CSCI 526 Database Systems
85% 75% (CO526.2): Master the technique for team play and teamwork for small scale database projects through brain storming and joint requirement planning.
87% 80%(CO526.10): Be able to demo and present the initial, intermediate, and final delivery of the database design project.

CSCI 527 Intelligent Database Systems
75% 50% (CO527.2): Obtain the technique for team play and teamwork for large intelligent database projects through brain storming and joint requirement planning.

CSCI 528 Object Oriented Methods
96% 90% (CO528.7): Integration Project.

Objective #6 (PO6): Students will become successful professionals able to gain employment and/or to be accepted into a Computer Science Ph.D. program.
Assessed by on-going follow-up surveys and letters of feedback from students.

Measurement:
A graduate student survey was conducted in July 2012 to obtain feedback about the master's program from current and former students and to obtain information about current employment from those students. The students were asked to complete the survey through a notice posted on 'Facebook' and through an email list maintained by the International Student Office for recently graduated students who were on OPT (occupational practical training).

One hundred current/former graduate students responded to the survey and their graduation dates ranged from 2003 to 2013 (projected). Of the 100 students who responded to the request to complete the survey eighty-three (83) students were employed at the time of the survey. Most of the students who graduated and not employed were either seeking employment or were in training to learn a specific software environment to prepare for employment. The results from the survey showing graduation date, employer, location of employment and job title/description can be found in the following three pages. The data is listed in descending order based on graduation year.

The average salary for those students is $79,371 with a range from a high of $130,000 to a low of $50,000. The highest starting salary of $92,200 recorded to date was obtained by a student who graduated in the Summer 2011 semester and was employed by Microsoft Corporation in Redmond Washington. Student employers included Apple, Microsoft, HP, RealNetworks, Ford Motor Company, Verizon, DirecTV, Nike, Office Max, Cannon, E-trade Financial, J P Morgan Chase, UPS, Sirius/XM Radio, Chrysler LLC, American Airlines, and Progressive Insurance to list a few. The jobs that the students have obtained demonstrate that TAMUC graduates are successful professionals and are competitive in the marketplace.

Graduation date		Salary	Employer	Location	Job Title
2012	Spring	$ 65,000.00	WELLS FARGO BANK	Tempe, AZ	Programmer Analyst (INFORMATICA & PL/SQL DEVELOPER)
2012	Spring	$ 65,000.00	GE, Global Research	New York, NY	Oracle DBA
2012	Spring	$ 55,000.00	Freeman Decorating Company	Dallas, TX	Junior level .Net Developer
2011	Fall	$ 55,000.00	ATI ALLVAC	Monroe, NC	Oracle apps developer
2011	summer	$ 60,000.00	Taylor Made Golf	Carlsbad, CA	PL/SQL Developer
2011	Fall	$ 55,000.00	Pfizer	Connecticut	Data warehousing, Technical Analyst
2011	Fall	$ 70,000.00	KODAK	Stamford (CT	System Analyst
2011	Fall	$ 65,000.00	Value Health America	Miami Florida	Software Developer
2011	Fall	$ 70,000.00	Availity	Miami, Florida	J2EE Developer
2011	Fall	$ 50,000.00	Verizon	Irving, TX	Oracle Developer
2011	Fall	$ 70,000.00	Department of Health Sciences (State of Wisconsin)	Madison Wisconsin	Java Developer
2011	Fall	$ 65,000.00	TIAA-CREF	Charlotte, NC	Java developer
2011	Summer	$ 88,000.00	High End Systems (A Barco Company)	Austin, Texas	Software Engineer II
2011	Summer	$ 60,000.00	SBase Technologies Inc	Irving, Texas	Senior Storage Administrator
2011	Fall	$ 60,000.00	Canon	Manhasset, NY	Database administrator
2011	Summer	$ 92,200.00	Microsoft	Redmond, Washington	Software Development Engineer in Test
2011	Fall	$ 60,000.00	Microsoft	Redmond, Washington	Microsoft .Net Developer
2011	Fall	$ 60,000.00	United States Steel	Pittsburgh , PA	Oracle SOA developer
2011	Spring	$ 60,000.00	Accenture	Topeka, KS	Oracle developer
2010	Spring	$ 65,000.00	Ika systems	Southborough, MA	Software Engineer
2010	Fall	$ 75,000.00	First Coast Service Option	Jacksonville, Florida	Oracle ADF Developer
2010	Summer	not supplied	Louisiana Department of Revenue-LDR	Baton Rouge, LA	Dot.Net Developer
2010	Spring	$ 56,000.00	Cynosure Inc.	Westford, MA	Software Developer
2010	Fall	$ 94,000.00	American Airlines	Dallas, TX	Java Developer
2010	Spring	$ 62,000.00	Fresenius Medical Care	Lexington, MA	Associate Systems Engineer/Administrator
2010	Fall	$ 50,000.00	Brown Greer PLC	Richmond, VA	Programming Developer
2010	Spring	$ 103,800.00	Caradigm (A joint venture of Microsoft and GE)	Redmond, WA	Software Engineer
2010	Summer	$ 60,000.00	Deloitte Harrisburg	Harrisburg , PA	.Net Developer
2010	Fall	$ 85,000.00	Riverside County Regional Hospital	Riverside, CA	SAN Administrator
2010	Fall	$ 77,500.00	Knowledge Path Solutions	Herndon, Virginia	Software Developer
2010	Fall	$ 70,000.00	MAQ Software	Redmond, Washington	Software Developer
2010	Spring	$ 60,000.00	Hilton World Wide	Mclean , VA	Peoplesoft Business Analyst
2010	Spring	$ 70,000.00	Brown Greer PLC	Richmond, VA	Programmer
2010	Fall	$ 70,000.00	Chrysler LLC	Auburn Hills, MI	Business Intelligence Analyst
2010	Fall	$ 70,000.00	VCE	Dallas, TX	Software developer
2010	Fall	$ 70,000.00	Kaiser Permanente	Los Angeles, CA	SOA Engineer
2010	Spring	$ 68,000.00	Protech solutions	Hamilton, New Jersey	Software developer
2010	Fall	$ 65,000.00	Genworth Financial Securities	Schaumburg, IL	IT Developer
2010	Fall	$ 70,000.00	CBRE	Dallas, TX	.net Developer
2010	Fall	$ 80,000.00	J P Morgan Chase	Columbus ,Ohio	Programming Assistant/ETL Developer
2010	Fall	$ 95,000.00	McLane Company	Temple, Texas	Hyperion Planning Architect

2010	Spring	$ 65,000.00	E-trade Financial	Menlopark, California	Systems Engineer	
2010	Summer	$ 50,000.00	Williams	Tulsa, OK	Oracle AppsDba	
2010	Spring	$ 85,000.00	Jackson National Life Insurance	Lansing, Michigan	C++/C# Developer	
2009	Fall	$ 70,000.00	Intermountain Health Care	Salt Lake City, Utah	Software Engineer	
2009	Fall	$ 55,000.00	Office Max	Naperville IL	Adobe Flex Developer	
2009	Spring	$ 93,000.00	NetApp Inc.	Sunnyvale, CA	Oracle Database Administrator	
2009	Fall	$ 110,000.00	Prodigy Technologies, Inc	New York, NY	Peoplesoft Techno Functional Analyst	
2009	Fall	$ 85,000.00	HP	Trenton, New Jersey	Programmer Analyst – JAVA Developer	
2009	Fall	$ 75,000.00	AuroraBankFSB	Denver, CO	Unix/Linux Engineer	
2009	Fall	$ 95,000.00	SiriusXM Radio Inc	New York, NY	developer in Subscriber Management Systems	
2009	Fall	$ 80,000.00	UPS Freight	Richmond, VA	Senior .NET Developer	
2008	Fall	$ 120,000.00	Western Digital	Mountain view, CA	Sr. Principal Engineer	
2008	Fall	$ 75,000.00	Lender Processing Services, Inc.	Jacksonville, Florida	IT-Web Applications Programmer II.E	
2008		$ 85,000.00	ERCOT	Taylor TX	Oracle Database Administrator	
2008	Fall	$ 85,000.00	IDIRECT TECHNOLOGIES	Herndon, VA	Oracle Applications DBA	
2008	Fall	$ 50,000.00	Springhouse	Exton, PA	Junior .NET Developer	
2008	Fall	$ 95,000.00	Oracle	Pleasanton, CA	Oracle Business Intelligence Applications Product Engineer	

Graduation date		Salary	Employer	Location	Job Title
2008	Fall	$ 100,000.00	Galaxe solutions Inc	Chicago, IL	Senior Software Consultant Java/J2ee
2008	Fall	$ 95,000.00	Texas Medicaid & Healthcare Partnership's (THMP)	Austin, TX	Programmer Analyst
2008	Fall	$ 84,000.00	Global Computer Enterprises, Inc. (GCE)	Reston, VA	Software Engineer
2008	Fall	$ 105,000.00	Plantronics	Santa Cruz, CA	Software Quality Engineer, Automation
2008	Fall	$ 75,000.00	Home Shopping Network	St Petersburg, FL	Software Engineer II
2008	Fall	$ 50,000.00	Protech	Little Rock, AR	.Net Developer
2007	Fall	$ 120,000.00	Crowley Maritime Corporation	Jacksonville, Florida	Peoplesoft Programmer & Analyst
2007	Fall	$ 120,000.00	Williams Lea	Chicago, IL	Peoplesoft Programmer & Analyst
2007	Fall	$ 70,000.00	City Of Phoenix Aviation Department	Phoenix, AZ	Application Developer
2007	Fall	$ 75,000.00	Verizon Telecom	Irving, TX	Sr. Programmer Analyst
2007	FALL	$ 65,000.00	Progressive Insurance Company	Colorado Springs, CO	Senior Dot Net Consultant
2006	Spring	$ 100,000.00	Verizon Data Services LLC	Irving, TX	Lead System Consultant
2006	Summer	$ 105,000.00	Apple Inc	Cupertino, CA	Database Administrator
2006	Spring	$ 130,000.00	DirecTV	Los Angeles, CA	Principle Engineer
2006	Fall	$ 125,000.00	U.S. Census Bureau (Dept. of Commerce)	Suitland, Maryland	Sr. Oracle Database Administrator (DBA)
2006	Fall	$ 110,000.00	Food & Drug Administration	Rockville, Maryland	Senior Programmer Analyst
2006	Fall	$ 115,000.00	NIKE	Portland, OR	Sr. SAP BI/MAP consultant
2006	Fall	$ 80,000.00	Illinois Student Assistance Commission	Deerfield, IL	Senior .NET Developer
2006	Fall	$ 110,000.00	Wells Fargo Bank NA	Fremont , CA	Software Engineer
2006	Spring	$ 60,000.00	Strategic Systems Inc	Columbus, OH	Programmer Analyst. Data Warehouse/ETL developer
2005	Fall	$ 75,000.00	Ford Motor Company	Dearborn, Michigan	Sr.J2EE Developer
2005	Fall	$ 90,000.00	Informative Graphics Corporation	Scottsdale, AZ	Software Engineer
2004	Fall	$ 110,000.00	Real Networks Inc.	Seattle, WA	Software Architect
2004	Fall	$ 125,000.00	Alliance Global Services	Conshocken, PA	LEAD DEVELOPER
2004	Fall	$ 100,000.00	Intelio Technologies Inc	Costa Mesa, CA	Director of Software Development
		$ 79,371.95	Average Salary		
		$ 130,000.00	Highest Salary		
		$ 50,000.00	Lowest Salary		

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