Department:

Unit Goals for 2011 and Accomplishments

1. Maintain quality of our instructional labs. We did so by purchasing new equipment for our upper division and graduate students. The 10 new iMacs and 8 new HP computers are in Maes 214.

2. Replace our student administrative assistant with a permanent one. We hired Ms. Catherine Gertz on December 1, 2011.

3. After the death of Mr. Myers Foreman in September, our goal was to recruit a new faculty member. We did received permission to replace Myers Foreman, and we are in the search process as of May 1, 2012.

4. Recruit and retain more undergraduate and graduate students: As shown below, undergraduate enrollment continues to increase slowly and graduate students are graduating a higher rate, but fewer are coming to Lamar in the first place.

1. Compare enrollment (SCH + Student FTE) data for the past three (3) years. Comment on trended data and actions taken this year.

Computer Science

		Fall 2007		Fall 2008		Fall 2009		Fall 2010		Fall 2011	
		Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
CIS	White	3	13	1	13	1	15	3	8	3	10
	Black	5	9	2	7	3	6	4	6	4	4
	Hispanic	0	0	0	0	0	0	0	0	0	0
	Asian	0	3	0	1	0	2	0	4	0	2
	American-Indian	0	0	0	0	0	0	0	0	0	0
	Multiracial	0	0	0	0	0	0	0	0	0	0
	Intl	0	1	0	0	0	0	0	0	0	0
	Unkn	0	3	0	0	0	0	0	0	1	0
	TOTAL	8	29	3	21	4	23	7	18	8	16
CS	White	4	45	5	38	8	47	3	55	4	65

	Black	6	15	12	16	8	18	8	17	8	26
	Hispanic	0	3	0	4	1	2	1	4	1	5
	Asian	0	3	0	2	0	3	0	4	0	2
	American-Indian	1	0	1	0	0	1	0	2	0	1
	Multiracial	0	0	0	0	0	0	0	0	1	0
	Intl	0	3	0	2	0	1	0	0	0	1
	Unkn	1	0	0	1	2	2	1	2	1	1
	TOTAL	12	69	18	63	19	74	13	84	15	101
MCS	White	1	2	1	3	1	4	0	1	0	1
	Black	0	0	0	0	0	0	0	1	0	0
	Hispanic	0	1	0	1	0	1	0	0	0	0
	Asian	0	2	0	1	0	1	0	4	0	1
	American-Indian	0	0	0	0	0	0	0	0	0	0
	Multiracial	0	0	0	0	0	0	0	0	0	5
	Intl	13	94	12	56	7	28	6	32	5	23
	Unkn	0	0	0	0	9	24	0	0	1	2
	TOTAL	14	99	13	61	17	58	6	38	6	32

CS Major SCH					
	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011
CIS	454	305	336	319	283
CS	1081	1028	1158	1236	1430
MCS	1023	670	614	383	311

Entering cohort					
	Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010
UG	36.36%	43.75%	28.00%	35.71%	54.29%
GR	36.17%	34.78%	25.00%	27.27%	25.00%

Undergraduate major enrollment has increased from 105 in 2008 to 140 in 2011 for an overall increase of 1/3 over three years. With respect to SCH from 2008 to 2011 the number from undergraduates increased from 1333 to 1713 for a 28.5% increase. These are good numbers, which show a steady growth in enrollment.

Enrollment in the MCS program went from 74 in 2008 to 38 in 2011 for a decrease of 49.7%. The SCH dropped from 670 to 311 which is down 55% over the three year period. Neither figure is acceptable to the department. We do feel that recent changes in the application and acceptance process are likely to improve the proportion of applicants who finally enroll at Lamar, but most of the MCS students are international students. The reasons they come to Lamar are usually based on country, cost, resources and housing available on campus, and, perhaps most important, the reputation of the school and program. Our graduates appear to be very satisfied according to the results of anonymous exit surveys and testimonials from graduates who have found employment. Hopefully, the U.S. will continue to grant visas to high potential students to study in this country and more areas will become familiar with Lamar due to active recruitment. More interesting information needs to be on the Graduate Studies website for students. Our department is looking into ways of improving advisement and the curriculum for the final project as ways to retain graduate students.

2. Examine unit's ability to contribute to teaching, research, and service missions of the organization. The CS faculty is competitive with the faculties of similar institutions in teaching, research and service. We are expecting to add another faculty member from fall whose record of work in all three areas is superb. Our faculty continue to publish in prestigious international journals and conference proceedings and to be awarded NSF grants. We have a very active faculty in teaching and service as well with several members either in faculty senate or previously holding leadership positions in faculty senate. As long as our numbers of students remain stable, we should continue to perform strongly.

3. Compare graduation rates for past three (3) years, what do these numbers/trends mean and what do you need to change or improve?

Graduation Numbers

				FY07	FY07	FY07	FY10	FY11
11010100	2	BS	COMPUTER SCIENCE	8	8	8	9	4
11010100	2	BSCIS	COMPUTER INFORMATION SCIENCES	8	8	8	9	4
11070100	3	MSCS	COMPUTER SCIENCE	31	25	19	23	13

For the past three years, our undergraduate total is 21, while the graduate total is 55. Over five years, the respective totals are 37 and 111. What these numbers mean, in my opinion, is that the CS department needs to improve on its graduate rate in order not to be designated a low performing program by Texas. The department believes that adding a new specialization in game programming and graphics will improve our undergraduate enrollment. The reason for this belief is that we attract 50-60 students on Friday nights with LAN parties in the department where only about half of the students are CS majors. If some of these people become interested through games and others remain in the program that might otherwise leave without the game courses, we should be okay. Also, enrollment is gradually rising anyway after several years of decreases following the crash of the dotcom companies in 2001.

4. Institutional Effectiveness Plans—Summarize how your unit is doing in setting, evaluating and using data to make revise, maintain, add or eliminate topics or courses. Each year we do an assessment report which is based on the ABET accreditation process. The reports are at http://cs.lamar.edu/abet/abethome.htm. We document our Educational Objectives, Student Outcomes, Performance Criteria, Targets, and faculty responsible for various aspects of the assessment. We take the data collected and analyze it. The data is both direct and indirect, qualitative and quantitative. We

then document what actions we are going to take and for what reasons in order to improve the program. Our efforts at continuous improvement include closing the loop and monitoring the results of our improvements to see whether they have been effective. Each year the entire faculty meets several times in the fall to consider the results of the previous academic year and to approve recommendations from the Assessment Committee and the Curriculum Committees. Periodically members of the department attend workshops and symposiums hosted by ABET to update programs on the latest changes in the ABET process of accreditation. Our next visit from the ABET organization will occur in fall 2013.

As part of the process, we look not only at curriculum, but also at other matters including student satisfaction with advisement, scheduling, instruction in teamwork and leadership, opportunities for independent study, participation in student organizations, and knowledge of the impact of computing on the well-being of the environment and global society.

Student Workers

1. Number employed and how utilized: 47 students were hired between January 1 and December 31 in 2011. These students were mainly used as graders and teaching assistants, but there were nine that worked as network technicians, two that were webmasters, and three that were office assistants.

2.   Total costs/semester and year: Total Cost for Spring 2011: $21,968.97.
          Total Cost for Summer 2011: $2,617.94
          Total Cost of Fall 2011: $28,453.16
          2011 Total: $53,040.07

Faculty Productivity Measures
          1.   Publications

                    ___2_ # of Manuscripts submitted not yet published
                  __24_ # of Manuscripts published

                        __22__ Refereed
                        ___2_ Non-refereed

                  __6__ # Books published (book chapters)

          2.   Professional Presentations

                  __3__ Local presentations
                  __4__ State / Regional
                  __9__ National
                  __7_ International
                  _23__ TOTAL #

3.   Research Grants (# and amount)

_____ Internally Funded – Lamar University of TSUS

Grant Title	Amount
"Interdepartmental Research: Building a Computer Science repository of American Sign Language signs for deaf and hard-of-hearing students." Stefan Andrei	$5000
Total	$5000

_____ State Funded

Grant Title	Amount
Total	

_____ National Funded

Grant Title	Amount
"Engagement of Undergraduates in Theory, Algorithms, and Applications of Science and Engineering in Information Technology." Kami Makki NSF	$314,997 for 3 years from 2009 to 2012
"Students Advancing through involvement in Research, Science Talent Expansion Program (STAIRSTEP)." Doerschuk NSF	$199,270 for a fifth year of funding ending in December 2013
"Java Gone Green, a Collaborative Research Experience for Undergraduates." Doerschuk and Liu NSF CREU program	$24,000 for the 2010-2011academic year.
"Increasing Student Participation in Research Development Program (INSPIRED)" Doerschuk and Liu	$490,633 for period 9/1/2008 to 8/31/2011
"NSF CAREER AWARD: An Effective Integration of Research and Education on High-Speed and Energy Efficient Interconnects for Multi-core and Multi-thread Systems." Liu NSF	$400,000 from September 2009 until present.
Supplemental to "MRI: Acquisition of Equipment to Develop and Energy Efficient and Reliable Wireless Sensor Network for Urban Landscape Irrigation Management Systems." Bo Sun, Makki, and Osborne NSF	$16,000 for one year from March 2011.
"MRI: Acquisition of Equipment to Develop and Energy Efficient and Reliable Wireless Sensor Network for Urban Landscape Irrigation Management Systems." Bo Sun, Makki, and Osborne NSF	$182,363 for January 2009 to August 2012.
"Computer Algebra: Research and Student Support." Tran NSF for the 17th International Conference on Applications of Computer Algebra."	$7000 for 2011-2012.
"Efficient Groebner Bases Computation in Boolean Rings for Temporal Logic Reasoning and Model Checking." Tran, NSF	$221,000 for 2009-2012.

4.   Teaching/Program Grants (# and amount)

_____   Internally Funded – Lamar University or TSUS

Grant Title	Amount

_____   State Funded

Grant Title	Amount
Total	

_____   Nationally Funded

Grant Title	Amount
"Renewal of Grant for use of the Teragrid on 5 supercomputers for educational purposes: Grant ID: TG-ASC090074" Teragrid Osborne	Not Applicable
"NVIDIA CUDA Teaching Center." Tran from the INVIDIA Company	$75,000 to 2011-2012.
Total	$75,000

5.   Faculty holding office in national/international professional organization - **Only**

Faculty	Organization	Office
Quoc-Nam Tran	1. BIOCOMP-2011 International Conference on Bioinformatics, Las Vegas, NV.	Vice Chair
	2.17th International Conference on Applications of Computer Algebra (ACA'11), Houston, Texas.	Chair
	3. International Coordinating and	Member

	Scientific Committee for Applications of Computer Algebra (IMACS-ACA), 1998-2011.	
	4. Scientific and Technical Committees for World Academy of Science, Engineering and Technology (2008-2011).	Member
	5. Scientific Program Committee for the international conference on applications of computer algebra ACA-2012, Bulgaria, Europe.	Member
	6. International Scientific Committees for World Academy of Science, Engineering and Technology Winter Conference in Dubai, UAE, January 2011.	Member
	7. International Scientific Committees for World Academy of Science, Engineering and Technology Conference in Amsterdam, the Netherlands, July 2011.	Member
	8. International Scientific Committees for World Academy of Science, Engineering and Technology. Scientific Committees for World Academy of Science, Engineering and Technology Conference in Bangkok, Thailand, December 25-26, 2011.	Member
	9. Member International Scientific Committees for World Academy of Science, Engineering and Technology Conference in Paris, France, November 14-16, 2011.	Member
Bo Sun	International Journal of Sensor Networks, Sept. 2010 - Present	Associate Editor

6.   Faculty Honors

Faculty	Honors
Quoc-Nam Tran	Member for a *National Science Foundation's Panel* for reviewing computer science proposals submitted to the Symbolic Computation and Algorithmic Foundation (AF) program in Spring 2011.
Peggy Doerschuk	University Professor

7.   Student Honors and Accomplishments

Does your Department have a Mirabeau Scholar? Yes X   No

If yes, please state their involvement and progress to date.

Student	Honors/Accomplishments
Valerie Juarez	Graduated in December 2011. She also participated in the following presentations at national conferences and activities: a. Kathlyn Doss, **Valerie Juarez**, Daniel Vincent, "Java Gone Green: Adaptable Teaching Materials for Programming Fundamentals Using Video Game Creation and Greenfoot," **Grace Hopper Celebration 2011** - Poster b. *"A Survey of Popular Game Creation Platforms Used for Computing Education," Kathlyn Doss, **Valerie Juarez**, Daniel Vincent, Peggy Doerschuk, Jane Liu, **Proceedings of the 41st ASEE/IEEE Frontiers in Education Conference, October, 2011.** c. Did research in robotics and development of instructional materials for middle and high school computing academies as part of the INSPIRED, STAIRSTEP , and CREU grant Programs.

8.   Development activities undertaken by you or faculty in your area. All of the faculty, except Dr. Koh, worked on grants that have been funded or on new proposals. All of our faculty, with the exception of Dr. Doerschuk, have learned through workshops and individual help from employees of Distance Education in order to create online courses. In addition, Dr. Stefan Andrei, Michael Beard, Peen-Peen

Chiou, and Frank Sun have created HEH courses after considerable effort to learn the techniques needed do this. Other areas of substantial professional development include participation on NSF panels for evaluating grant proposals. Drs. Doerschuk, Liu, Makki, and Tran engaged in this activity during 2010. All of our faculty, including myself, reviewed publications including journals, books, and conferences.

Dr. Tran received a teaching grant from the Invidia Company for setting up a CUDA Teaching Center. Classroom for that activity will be created during the summer of 2012 according to the Physical Plant. We also added a new switch for our labs that will provide 1Gbyte to the desktop instead of 100 Mbytes, which is what we now have. That should made graphics, videos, and gaming possible for an entire class of students at the same time.

9.   HEAF summary (goals accomplished, dollars spent and major goal for next year)

HEAF Goals Accomplished	Dollars Spent
Renovated two instructional labs in Maes Building by purchasing 45 Deall Precision T1500 computers Maes 212-Maes 213	$51,817.50
Podium for Maes 109	$2,845.00
Dell Laptop for System Administration Use	$2942.13
Printers, and Scanners and a Dell Precision Workstation	$10,522.58
Microway Quad-Core Xeon + Tesla Workstation for use in GPU programming Maes 208	$11,200.00
8 Hewlett Packard workstations (Maes 214)	$6,652.64
GHA Technology Projector Maes 107	$658.80
10 iMac Workstations (Maes 214)	$15,058.00
Total	$101,696.65

Major HEAF goals for next year: New computers for Maes 215 instructional lab, new cabling and new switch for instructional labs 208-212-213-214, 215, and 216. We also need additional memory for our server rack in Maes 208. We want to spend some money to create a faculty lounge for the computer science department. At this time, we do not have any space for that purpose except part of a custodian's storage space. It is smaller than a bedroom closet in most new homes.

Renovation of Commons Area in Maes 202 is also scheduled for 2012. I do not know whether HEAF money is expected to pay the costs for this work. Finally, and very important, is that we will need HEAF money to give our new tenure track assistant professor start-up money for a graphics and gaming lab with 15 computers. Our expected cost is about $35,000 for the equipment, software and possible room renovations required for a reasonable lab for this purpose.

Major goals for course fee monies for this year:

Goal Accomplished	Dollars Spent
Licenses for Matlab and related software	$ 1,058.40
Multimedia lectern with sub-surface monitor	$ 2,685.00
Dell portable hard drive	$ 1,252.68
Oracle software updates and licenses	$ 2,922.58
Hernandez Office Supplies	$ 1,871.95
2 Webots with 6 floating licenses	$ 800.00
Total:	$10,590.61

10.   Evaluation of accomplishments of your unit this year.

We have received permission to replace Mr. Foreman, and we expect to have a new tenure-track person in the department in fall 2012. Moreover, that person will have research and instructional experience in the area of computer graphics and computer gaming, areas in which we were previously weak and which are popular with students. Thus, we anticipate that our undergraduate program will continue to grow as a result of the efforts we made to initiate a search for a new faculty member in 2011.

Our new Administrative Associate, Ms. Catherine Gertz, has brought order and organization to our department Office. She is recognized already for her ability to interact with all types of people and to use technology to improve the efficiency of our operations. The entire faculty appreciates the improvement in all procedures.

The addition of iMac and HP computers has added two new platforms for students in our labs. The students believe that they are better able to prepare for the workplace because of these additions.

With the arrival of a new assistant professor in graphics and computing gaming, we expect to continue to grow our undergraduate program, and we hope that the addition of graduate courses in these areas will appeal to graduate students as well. Changes in application procedures within the Graduate Studies Office also should help us to recruit more students for the M.S. program. Our faculty is looking carefully at our graduate program to ensure the quality of the curriculum and advisement.

We are still in the process of finding suitable space for the CUDA Teaching Lab, but we expect the space and equipment to be in use by the end of the summer of 2012.

11.   Report of centers in your department (*goals accomplished, problems, and major goals for next year*).
Research Labs in Computer Science served as both research and teaching areas for many students. The research labs are as follows: Maes 105-107: Algorithms (Tran); Maes 104-106: Computer Architecture (Liu); Maes 201: Robotics and Outreach (Doerschuk); Maes 208: Database Design (Makki); Maes 209: Wireless Sensor Networks (Sun); Maes 209 B: Real-time Systems (Andrei). These labs enable their directors to complete the requirements of grant proposals. Among the problems are keeping the equipment up-to-date since in most cases, no money was placed in the grant nor promised by an entity at Lamar for sustaining the activities begun by the grant. Our goals are simply to continue to advance the state of computing through dedicated research.

12.   Report of activities/accomplishments of Endowed Chairs in your department.

N.A.

13.   Report any initiatives under taken this year by your unit.

       The CS department participated in the renovation of the second floor of Maes
       during 2011.

14.   Identify special projects or initiative you plan for next year.
       1. Renovate instructional lab in Room 212 so that it is divided into 2 labs, one of
          which will have 40 computers and the other 20. The smaller piece will be used for the CUDA
          Teaching Lab.
       2. Renovate Maes 202 (Commons Area)
       3. Consider setting up a classroom suited to Scale Up instruction suggested by the
          21st Century Presentation developed by the Education Tech Leadership group.

       4. Create a faculty lounge. Currently, CS does not have one. We are using part of a custodian's
          storage room for mailboxes and a microwave, but it is too small for even a chair.

15.   Any ***BRAG*** points not identified in the above.

       None that we are aware of.

16.   Reports on undergraduate research and community outreach are attached in separate files.