Part 2 – Comprehensive Program Review Fall 2009

Program Name: **Computer Science Program, Math Department, SME Division**

A. PAST: Review of Program Performance, Objectives, and Outcomes for the Three Previous Academic Years: 2006-07, 2007-08, 2008-09

1. List the objectives developed for this program during the last comprehensive program review.

   In the 2005-2008 comprehensive program review, our goal was to begin offering Computer Science classes in the fall of 2007.

2. Present program performance data in tabular form for the previous three years that demonstrates the program's performance toward meeting the previous objectives. Include the following standard program performance metrics as well additional program specific metrics, if any.
   a. For teaching programs this data should include at least the following: Enrollment at census, number of sections, fill rate, retention rate, success rate, and grade distribution for each course in the program, during each semester and session of the previous three academic years. In addition, the Full Time Equivalent Faculty (FTEF) and Full Time Equivalent Students (FTES) and the ratio of FTES per FTEF should be presented for the program for each semester and session.
   b. For non teaching programs this data should include the following: TBD

Computer Science Program
Enrollment Count at Census

Course	Fall				Spring				Summer				Winter				Grand Total
	2006	2007	2008	Total	2007	2008	2009	Total	2007	2008	2009	Total	2007	2008	2009	Total	
CS 1		16		16		9		9									25
CS 210	9	9		18	5	11		16	9	10		19		5		5	58
CS 220			18	18			22	22			3	3					43
CS 230			5	5			16	16									21
CS 260		5		5	6	12		18									23
CS 280		5	6	11	5	13	6	24									35
Total	9	35	29	73	16	45	44	105	9	10	3	22		5		5	205

Computer Science Program
Number of Sections

Course	Fall				Spr.				Sum.				Win.				Grand Total
	2006	2007	2008	Total	2007	2008	2009	Total	2007	2008	2009	Total	2007	2008	2009	Total	
CS 1		1		1		1		1									2
CS 210	2	1		3	1	1		2	1	1		2		1		1	8
CS 220			1	1			1	1			1	1					3
CS 230			1	1			1	1									2
CS 260		1		1	1	1		2									3
CS 280		1	1	2	1	1	1	3									5
Total	2	4	3	9	3	4	3	10	1	1	1	3		1		1	23

Computer Science Program
Fill Rate

Course	Fall				Spring				Summer				Winter				Grand Total
	2006	2007	2008	Total	2007	2008	2009	Total	2007	2008	2009	Total	2007	2008	2009	Total	
CS 1		46%		46%		26%		26%									36%
CS 210	16%	32%		21%	18%	39%		29%	32%	36%		34%		18%		18%	26%
CS 220			75%	75%			92%	92%			13%	13%					60%
CS 230			21%	21%			67%	67%									44%
CS 260		18%		18%	21%	43%		32%									27%
CS 280		21%	25%	23%	21%	54%	25%	33%									29%

Computer Science Program
Student Success Rate

Course	Fall				Spring				Summer				Winter				3-Year Average
	2006	2007	2008	Avg.	2007	2008	2009	Avg.	2007	2008	2009	Avg.	2007	2008	2009	Avg.	
CS001		56%		56%		67%		67%									61%
CS210	89%	100%		94%	40%	91%		65%	78%	90%		84%		100%		100%	84%
CS220			78%	78%			55%	55%			100%	100%					77%

CS230			80%	80%			88%	88%									84%
CS260		100%		100%	67%	100%		83%									89%
CS280		80%	100%	90%	60%	100%	100%	87%									88%
Avg.	89%	84%	86%	85%	56%	89%	81%	77%	78%	90%	100%	89%		100%		100%	83%

Computer Science Program
Student Retention Rate

Course	Fall				Spring				Summer				Winter				3-Yr. Average
	2006	2007	2008	Avg.	2007	2008	2009	Avg.	2007	2008	2009	Avg.	2007	2008	2009	Avg.	
CS001		56%		56%		78%		78%									67%
CS210	89%	100%		94%	40%	91%		65%	78%	90%		84%		100%		100%	84%
CS220			78%	78%			68%	68%			100%	100%					82%
CS230			80%	80%			88%	88%									84%
CS260		100%		100%	83%	100%		92%									94%
CS280		80%	100%	90%	100%	100%	100%	100%									96%
Avg.	89%	84%	86%	85%	74%	92%	85%	85%	78%	90%	100%	89%		100%		100%	86%

Grade Distribution

Term	Sem.	Year	Program	Course	A	B	C	CR	D	F	Other	W	Total	# Succeed	Success Rate	Retention Rate
200710	Fall	2006	CS	CS210	6	2						1	9	8	88.9%	88.9%
200720	Spr.	2007	CS	CS210	2							3	5	2	40.0%	40.0%
200720	Spr.	2007	CS	CS260	4					1		1	6	4	66.7%	83.3%
200720	Spr.	2007	CS	CS280	3					2			5	3	60.0%	100.0%
200730	Sum.	2007	CS	CS210	6	1						2	9	7	77.8%	77.8%
200810	Fall	2007	CS	CS001	5	4						7	16	9	56.3%	56.3%
200810	Fall	2007	CS	CS210	9								9	9	100.0%	100.0%
200810	Fall	2007	CS	CS260	5								5	5	100.0%	100.0%
200810	Fall	2007	CS	CS280	4							1	5	4	80.0%	80.0%
200815	Win.	2008	CS	CS210	2	3							5	5	100.0%	100.0%
200820	Spr.	2008	CS	CS001	1	3	2			1		2	9	6	66.7%	77.8%
200820	Spr.	2008	CS	CS210	5	5						1	11	10	90.9%	90.9%

200820	Spr.	2008	CS	CS260	7	5							12	12	100.0%	100.0%
200820	Spr.	2008	CS	CS280	8	4	1						13	13	100.0%	100.0%
200830	Sum.	2008	CS	CS210	6	3						1	10	9	90.0%	90.0%
200910	Fall	2008	CS	CS220	5	7	2					4	18	14	77.8%	77.8%
200910	Fall	2008	CS	CS230	3	1						1	5	4	80.0%	80.0%
200910	Fall	2008	CS	CS280	2	4							6	6	100.0%	100.0%
200920	Spr.	2009	CS	CS220	7	4	1		1	2		7	22	12	54.5%	68.2%
200920	Spr.	2009	CS	CS230	2	8	4					2	16	14	87.5%	87.5%
200920	Spr.	2009	CS	CS280	4	2							6	6	100.0%	100.0%
200930	Sum.	2009	CS	CS220	3								3	3	100.0%	100.0%
					99	56	10		1	6		33	205	165		

Computer Science Program
Full Time Equivalent Student (FTEs)

Course	Fall				Spring				Summer				Winter				Grand Total
	2006	2007	2008	Total	2007	2008	2009	Total	2007	2008	2009	Total	2007	2008	2009	Total	
CS 1		0.5		0.5		0.2		0.2									0.7
CS 210	1.9	1.9		3.7	1.0	2.3		3.3	1.8	2.1		3.9		1.0		1.0	12.0
CS 220			3.7	3.7			4.6	4.6			0.6	0.6					8.9
CS 230			1.0	1.0			3.3	3.3									4.4
CS 260		1.0		1.0	1.2	2.5		3.7									4.8
CS 280		1.0	1.2	2.3	1.0	2.7	1.2	5.0									7.2
Total	1.9	4.4	6.0	12.3	3.3	7.7	9.1	20.1	1.8	2.1	0.6	4.6		1.0		1.0	38.0

Computer Science Program
Full Time Equivalent Faculty (FTEf)

Course	Fall				Spring				Summer				Winter				Grand Total
	2006	2007	2008	Total	2007	2008	2009	Total	2007	2008	2009	Total	2007	2008	2009	Total	
CS 1		0.1		0.1		0.1		0.1									0.1
CS 210	0.8	0.4		1.2	0.4	0.4		0.8	0.4	0.4		0.8		0.4		0.4	3.2
CS 220			0.4	0.4			0.4	0.4			0.4	0.4					1.2

CS 230			0.4	0.4			0.4	0.4									0.8
CS 260		0.4		0.4	0.4	0.4		0.8									1.2
CS 280		0.4	0.4	0.8	0.4	0.4	0.4	1.2									2.0
Total	0.8	1.3	1.2	3.3	1.2	1.3	1.2	3.7	0.4	0.4	0.4	1.2		0.4		0.4	8.5

Computer Science Program
FTEs per FTEf

Course	Fall				Spring				Summer				Winter				Overall Avg.
	2006	2007	2008	Avg.	2007	2008	2009	Avg.	2007	2008	2009	Avg.	2007	2008	2009	Avg.	
CS 1		7.3		7.3		3.6		3.6									5.5
CS 210	2.3	4.7		3.1	2.6	5.7		4.1	4.5	5.3		4.9		2.5		2.5	3.7
CS 220			9.4	9.4			11.4	11.4			1.6	1.6					7.5
CS 230			2.6	2.6			8.3	8.3									5.5
CS 260		2.6		2.6	3.1	6.2		4.7									4.0
CS 280		2.6	3.1	2.8	2.6	6.7	3.1	4.1									3.6
Avg.	2.3	3.5	5.0	3.8	2.8	6.1	7.6	5.5	4.5	5.3	1.6	3.8		2.5		2.5	4.5

3. Present student learning or service area outcomes data that demonstrate the program's continuous educational and/or service quality improvement. Include the following standard information and metrics as well as additional program specific metrics, if any.

   List the program level outcomes, goals or objectives and show how these support the Institutional Student Learning Outcomes. Identify the method(s) of assessment used for each of the program level outcomes. Provide a summary of the outcome data for the program, including course and program level data as appropriate.

   SLO data for computer science classes will be collected beginning in the spring of 2009.

4. Analyze the data presented visually (graphs, diagrams, etc.) and verbally (text) as appropriate, present any trends, anomalies, and conclusions. Explain the program's success or failure in meeting the objectives presented above in item one. Explain the ways that the program utilized the student learning or service area outcome data presented in item three to improve the program (changes to curriculum, instructional methodology, support services, etc.)

Enrollment: The Computer Science Program was redesigned after 2006-2007 after a review of a Computer Science degree offering by IVC and of transferability of IVC Computer Science courses to four-year institutions. The current Computer Science Program began in the Fall of 2008. This makes tracking the data across the three-year period more challenging than it otherwise would have been. Please note that CS 210 has become CS 220 and CS 260 has become CS230, effective in the Fall 2008. CS 1 was a one-unit introductory course that was offered once and is no longer in our catalog.

The data shows that our entry–level course (CS220) doubled its enrollment from 2007-8 to 2008-9. Since this is a sequential curriculum, that increase was passed on to the enrollment in CS 230 in the spring of 2009. These numbers go a long way to establishing the viability of a Computer Science program at IVC. The enrollment data for second-level courses: CS 230 and CS 280, is somewhat skewed by the fact that IVC offered both courses in the spring and fall of 2008-9, while the program was under grant support. Moving forward, we are offering each course once a year, until the numbers suggest otherwise.

Fill Rates: The fill rates for CS 220 in 2008-9 show that the classes are nearing maturity, while CS 230 and CS 280 are waiting for the number of students completing the first course to reach critical mass. Offering CS 220 each semester and CS 230 / CS 280 alternating semesters, should balance the fill rates in the future.

Student Success and Retention: The success and retention rates were fairly constant across the period with the exception of a one-time dip in the spring of 2007. That dip is a reflection of a time when staffing and curriculum were highly uncertain. The data appears to trend much more consistently since then, as staffing and curriculum have stabilized.

FTES/FTEF: This has been rising steadily over the period, as student confidence in the program has increased.

B. PRESENT: Snapshot of the State of the Program in the Current Semester: Fall 2009

1. Give a verbal description of the program as it exists at the present time. Include information on current staffing levels, current student enrollments, student learning or service area outcome implementation, number of majors, and/or other data as appropriate.

Currently, the Computer Science Program employs one full-time professor. His load is approximately 50% Computer Science and 50% Math. In the Fall of 2009 we offered CS 220 and CS 230. CS 220 had an enrollment of 26 with 18 completing the course, while CS 230 had an enrollment of 8, with 7 completing the course. The CS 220 enrollment continues the rising trend noted earlier. The CS 230 numbers do not. This bears watching. As noted previously, CS 230 and CS 280 were offered too frequently in 2008-2009. We are currently offering one section of CS 220 in the fall and spring semesters and offering CS 230 and CS 280 once a year, on a rotating basis. This spring we also begin offering CS 170, a 3-unit course in UNIX, which is strictly an elective. We plan to offer this course once every four semesters, unless demand indicates an increase.

We offer an A.S. in Computer Science, for which CS 220, CS 230, and CS 280 are required courses. SLO's have been written for CS 220, CS 230 and CS 280. They have yet to be filed with the SLO coordinator. Data will be collected on these courses beginning in the spring of 2009. SLO's for CS 170 will be developed this spring

3. List any significant issues or problems that the program is immediately facing.

Our only significant issue at this time involves facilities. The Computer Science program has yet to find a permanent home. The most desirable outcome would for the program to be housed in the 2700 building. A shared room with the computer-based math classes would be optimal for the school from a cost and space standpoint.

C. FUTURE: Program Objectives for the Next Three Academic Years: 2009-10, 2010-11, 2011-12

1. Identify the program objectives for the next three academic years, making sure these objectives are consistent with the college's Educational Master Plan goals. Include how accomplishment is to be identified or measured and identify the planned completion dates. If any objectives are anticipated to extend beyond this three-year period, identify how much is to be accomplished by the end of this review period and performance measures.

   Our objective in the next three years is to continue to grow and stabilize the program. We will be measuring this in terms of enrollment, success and retention, and FTES/FTEF ratios. SLO data, as it comes in, will be incorporated in the assessment of the curriculum and its effectiveness.

   Closely related to this will be the modernization of our classroom facilities.

2. Identify how student learning or service area outcomes will be expanded and fully implemented into the program. Include a progress timeline for implementation and program improvement.

   Spring 2010: SLO's will be filed for CS 170, CS 220, CS 230, and CS 280. Data will collected for each except CS 280, which is not offered. Fall 2010 and Beyond: Data will collected for each course as they are offered. Fall 2011. Assessment of SLO data will be incorporated into future curriculum changes.

3. Identify any resources needed to accomplish these objectives. Identify any obstacles toward accomplishment and the plan to surmount these obstacles.

   Our current facility, room 1705, has 24 terminals. That puts a tight cap on the growth of this program. In addition, this room is distant from the other facilities that Computer Science students and professors use. It would be beneficial to have the program housed in the 2700 building or as close as possible. The cost of providing power to a potential lab in the 2700 is the only hurdle to surmount.

4. Identify any outside factors that might influence your program during the next three years.

   The economy is the central factor. Computer programming is a profession that is highly sensitive to economic conditions. Programmers are alternately highly in demand or unemployed. This has an effect on student interest. Enrollments in Computer Science programs at nearby institutions have fluctuated a good deal over the last generation.