BRAZOSPORT COLLEGE

500 College Drive
Lake Jackson, Texas 77566

FIRST MONITORING REPORT TO THE FIFTH-YEAR INTERIM REPORT

COC STAFF MEMBER: DR. BARRY GOLDSTEIN

Submitted September 3, 2013 to the

COMMISSION ON COLLEGES
of the
SOUTHERN ASSOCIATION OF COLLEGES AND SCHOOLS

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COMPREHENSIVE STANDARD 3.3.1.1: The institution identifies expected outcomes, assesses the extent to which it achieves these outcomes, and provides evidence of improvements based on analysis of the results in each of the following areas: (Institutional Effectiveness) in educational programs, to include student learning outcomes.

Committee on Fifth-Year Interim Report Request: The institution has provided information indicating that students have met the goals of student learning outcomes for those programs measured. However, the information does not make explicit the connections between assessment of student learning outcomes and the use of those results for improvement. The current report leaves unclear how student learning outcomes are related to the program improvements already undertaken. The report should go beyond simply citing improvements in programs and specify the connections between the assessment of student learning outcomes and the use of those results for improvement.

Brazosport College Response: Brazosport College's mission statement specifies the institution's commitment to "student success by responding to student needs, creating a dynamic learning environment, exceeding expectations, and enriching our community." Because the College values "commitment to excellence in both teaching and learning," identified student learning outcomes and educational program outcomes are assessed in a variety of ways, and the results are used to inform the process of planning for improvement. Several processes serve to: 1) identify expected learning outcomes, 2) assess the extent to which learning outcomes are achieved, and 3) provide evidence of improvement based upon the analysis of results.

Identify Expected Student Learning Outcomes

In 2007, Brazosport College established the General Education Assessment Committee (GEAC) and the Workforce Education Assessment Committee (WEAC) for the purpose of ensuring that student learning outcomes were identified, assessed, and the results used to improve educational

outcomes for student learning. While the initial work of these committees centered around the continued identification, assessment, and use of *course* student learning outcomes to improve curriculum, its oversight was extended to the collection and use of *program* student learning outcomes to improve instructional programs. Currently all credit courses, general education and workforce education, have identified student learning outcomes and every program has identified program student learning outcomes.

Assessment of course level student learning outcomes began with the formation of GEAC and WEAC. With the oversight of these committees, faculty have developed a Student Learning Outcomes Evaluation System for all students in every credit course at the college. The College's goal in developing the evaluation system was to: 1) identify the key learning outcomes desired in each of its 550 credit course offerings, 2) determine how student mastery of those identified learning outcomes could be reliably assessed, 3) develop a tracking system that would provide historical data , 4) develop a useful report generation program, and 5) use the results to improve student learning. With 550 courses and an average of 12 learning outcomes per course, there are 6600 learning outcomes and 6600 assessments.

Considering there is an average of 22 students per section, this is approximately 145,000 data points entered per semester. This software is linked to the College's student database system and faculty enter data for every student in every learning outcome for every course. The available reports show the level of learning outcome mastery and allows for necessary curriculum improvements.

The reports also show which instructors are most effective in a particular outcome, allowing for the sharing of best practices within departments. The cumulative data show whether the course

grade is consistent with the percentage of mastered outcomes and enables the student to have a "Learning Outcomes Transcript" showing not only the courses the individual took and grades earned, but also a list of mastered learning outcomes for each of the courses. The Student Learning Outcomes Evaluation System also allows a comparison of student success by course, by instructor, and by learning outcome.

Program Student Learning Outcomes

The GEAC and WEAC have assisted in the establishment of a parallel process for *program* student learning outcomes. As directed by SACSCOC, educational programs at the College are defined as any program that leads to an award of a certificate or a degree. In the case of the College's Associate of Arts and the Associate of Science degrees, program student learning outcomes have been defined by the Texas Higher Education Coordinating Board's General Education Core Curriculum. As mandated by the THECB, each institution of higher education's core curriculum should be described and assessed by institutions and their faculty in terms of basic intellectual competencies, rather than simply in terms of specific courses and course content. Concomitant with this mandate, Brazosport College's core curriculum includes six general education competencies: 1) Listening, 2) Reading, 3) Critical Thinking, 4) Speaking, 5) Computer Literacy, and 6) Writing. In the area of workforce education, educational programs are assessed by the department heads responsible for the programs. Department chairs are required to identify expected program student learning outcomes and the assessment methodology and criteria for success they have identified as most effective to generate meaningful information for evaluating each of the workforce education programs within their area of responsibility. These outcomes and their means of assessment/criteria for success are submitted to the WEAC. Once a year workforce educational programs collect and provide data documenting the extent to which

those program student learning outcomes have been achieved. Workforce educational programs also evaluate results to determine what changes need to be made at the program level to ensure student success. As with the course level assessment information, these results are provided to the WEAC for review. Workforce programs are also assessed for compliance with the Texas Higher Education Coordinating Board requirements including SCANS competencies, advisory committee recommendations and any applicable licensing and/or accreditation requirements, all of which establish specific assessment standards and outline the processes required to assess these standards.

The resulting educational programs that lead to a certificate or a degree following the aforementioned requirements of either general education and/or workforce education programs are listed in the table below:

21 Programs
Associate of Applied Science (AAS) in:
Automotive Technology
Chemical Technology
Child Development/Early Childhood
Computer Technology
Construction Management
Criminal Justice Technology
Drafting Technology
Emergency Medical Technology
Heating, Ventilation, Air Conditioning
Industrial/Commercial Electricity
Instrumentation Technology
Law Enforcement Academy
Machine Tools/Millwright
Nursing, LVN
Nursing, RN
Office Administration
Pipefitting
Safety, Health & Environmental Management
Welding Technology
General Education Core Curriculum
Bachelor of Applied Technology in Industrial Management

Brazosport College has established a robust system of assessment for educational programs that requires a biannual academic program review. Every year, the faculty within the program conduct analyses of several sets of data, including:

- Program student learning outcome assessment results
- A common data set provided by the Office of Institutional Research containing data on student demographics, course success and withdrawal rates, and number of awards and graduates
- When applicable, program advisory committee feedback
- Institution-wide student success data from the Community College Survey of Student Engagement and Achieving the Dream metrics

In addition, each educational program has a curriculum matrix showing the specific courses and sequences of courses in which students are presented with disciplinary content material and the opportunities to build appropriate skills. These matrices, constructed by the program faculty, link individual courses to the programmatic student learning outcomes, thereby ensuring that each program's curriculum provides the strongest opportunity for students to master the outcomes of that program. This careful connecting of course and program student learning outcomes allows for the assessment and use of results at multiple levels of analysis.

Assessment of Extent to which Program Learning Outcomes Have Been Met

As noted above, all course sections are assessed on a semester-by-semester basis. Course level student learning outcomes and criteria for success are developed by faculty members within each discipline. Within each educational program, student learning outcomes are assessed at both the course level and at the program level. In the Associate of Arts and Associate of Science, embedded course assessments and the Collegiate Assessment of Academic Proficiency Test

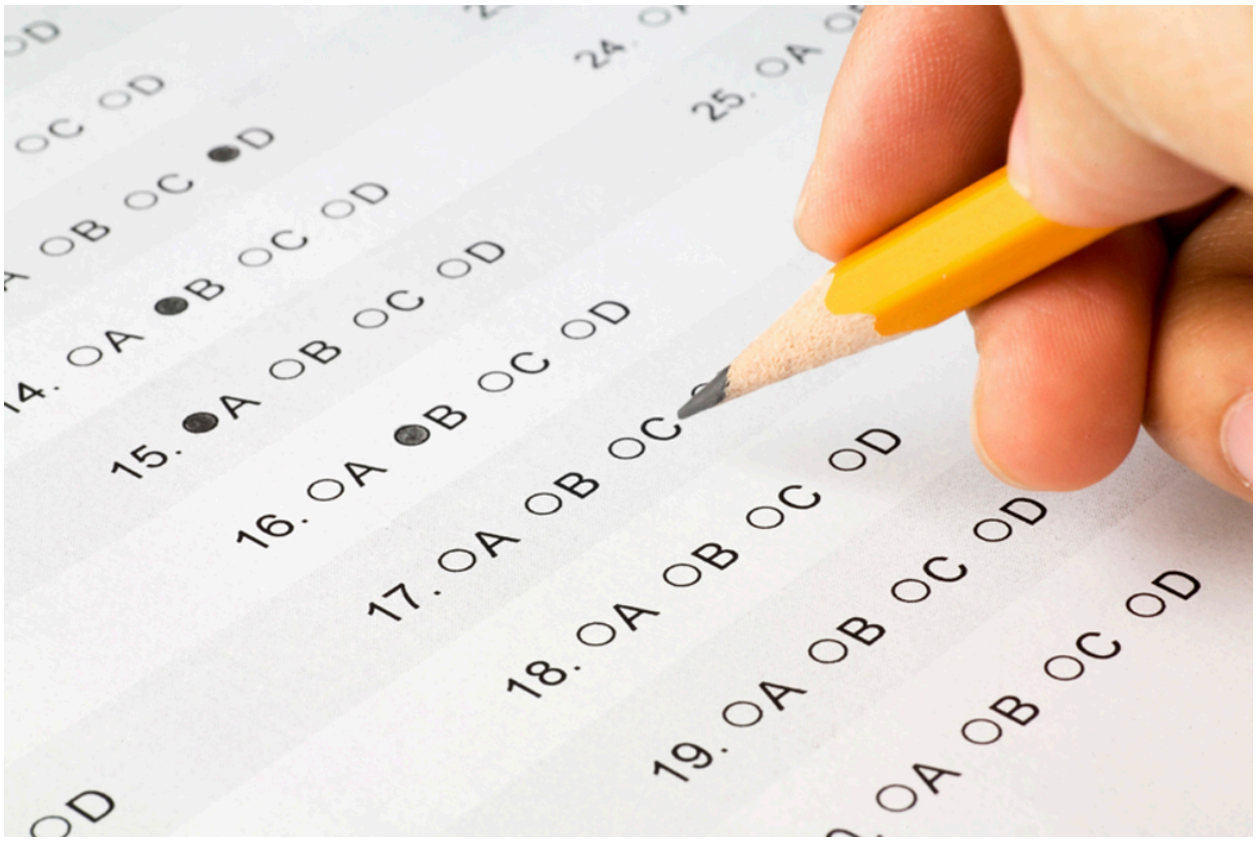
(CAAP) are the primary methods of assessing the program student learning outcomes. In the Associate of Applied Science programs, the primary methods of assessing program student learning outcomes are embedded course assessments. This information is submitted to the GEAC and WEAC for review and comment. At the end of each semester faculty are required to use the assessment methodology they have identified as most effective to evaluate student learner outcomes and to document the extent to which each of the student learning outcomes have been met across all their courses. Faculty must then analyze and evaluate those results to determine how those results can be used to improve student learning.

In addition to the identification and assessment of program level student learning outcomes, all educational programs at Brazosport College assess program outcomes for *other* aspects of their operations on an annual basis. To evaluate these outcomes, each program uses a set of qualitative data on faculty teaching loads, course grade distributions, and student demographics provided from the Office of Institutional Research. Additional data includes program advisory feedback from industry and students, number of awards, and labor market outcomes.

Use of Assessment Data and Evidence of Improvement Based on Analysis of Results

The results of the annual program reviews include articulation of specific improvement needs of each program. These include resource needs, curricular modifications, and modifications to assessment tools and processes. The specific use of assessment data and evidence of improvement based on analysis of results can be seen in the written reports included in Academic Program Reviews AY2009 and Academic Program Reviews AY2011. Examples are provided here from the General Education Core Curriculum, Chemical Technology, and Computer Technology.

BRAZOSPORT COLLEGE PROGRAMS REVIEW 2011



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BASIC PROGRAM REVIEW FORM (BPR)

Program:	General Education Core Curriculum
Program Director:	General Education Assessment Committee
Review Period:	AY 2010-AY2011
Date of Previous Review:	2009
Review Participants:	General Education Core Curriculum
Academic Dean:	Dr. Lynda Villanueva
Description of the Review Process:	Determination of outcomes to be assessed for the program academic year. Review of program student learning outcome assessments and results. Development of a prescriptive plan based upon the program assessment results. Monitor impact of prescriptive plan and adjust as needed based on results. Incorporate and use results as part of the College's long range strategic and budgetary plan.

BRAZOSPORT COLLEGE SUMMARY REPORT ON THE EVALUATION OF ITS CORE CURRICULUM

As required by Brazosport College, all Associate of Arts and Associate of Science degree graduates complete a minimum of forty-five (45) general education core semester credit hours. With completion of the 45-semester credit hour Core Curriculum, which contains a combination of communications, humanities/fine arts, mathematics, natural and physical sciences, social and behavioral sciences, and computer literacy, students are exposed to a breadth of knowledge and are not narrowly focused on those skills, techniques, and procedures peculiar to their major. This general education core provides for degrees that are broad in nature and include skills necessary for thinking rationally and communicating effectively.

Brazosport College's curriculum helps students learn how to discover, appreciate, and competently use - with increasing independence - knowledge and skills related to the areas that include human behavior and social interaction, achievement in the arts and philosophy, and understanding of the natural and physical world. These studies include logical thought, written communication, and critical reflection. The general education core, taken as a whole, is designed to broaden the viewpoint and increase cultural awareness of Brazosport College students; it provides a coherent rationale that assists students in becoming informed, well-rounded participants in their society.

The GEAC has assisted in the establishment of ***program*** student learning outcomes for the General Education Program at Brazosport College. As directed by SACSCOC, educational programs at the College are defined as any program that leads to an award of a certificate or a degree. In the case of the College's Associate of Arts and the Associate of Science degrees, program student learning outcomes have been defined by the Texas Higher Education

Coordinating Board's General Education Core Curriculum. As mandated by the THECB, each institution of higher education's core curriculum should be described and assessed by institutions and their faculty in terms of basic intellectual competencies, rather than simply in terms of specific courses and course content. Concomitant with this mandate, Brazosport College's core curriculum includes six general education competencies: **1) Listening, 2) Reading, 3) Critical Thinking, 4) Speaking, 5) Computer Literacy, and 6) Writing**.

Brazosport College has a system for creating, reviewing, and assessing general education courses and their suitability as core courses. The process involves review and discussion by representatives from all general education instructional areas. The college requires that the core curriculum be evaluated in light of its six general education program learning competencies. This report provides the following information:

1. The 45-semester credit hour **Core Curriculum** of Brazosport College, as proposed by its faculty and approved by the college-wide Curriculum and Instruction Committee, the college's Board of Regents, and the Texas Higher Education Coordinating Board
2. A **curriculum matrix** showing the specific courses and sequences of courses in which students are presented with disciplinary content material and the opportunities to build appropriate general education program learning outcomes.
3. **General Education Core Curriculum Intellectual Competencies Assessment Chart**
4. A summarized **review of programmatic changes** and additional data used to support such changes

Brazosport College Core Curriculum

Component Area	Core Code	Required Semester Credit Hours	Core Courses
Communication ENGL (Core A)	010	6	ENGL 1301 and ENGL 1302
Communication SPCH (Core A)	011	3	SPCH 1315, 1318, or 1321
Mathematics (Core B)	020	3	One course from: MATH 1314, 1316, 1324, 1325, 1332, 1342, 1350, 1351, 2412, 2413, 2414
Natural Sciences (with laboratories) (Core C)	030	8	Two courses from: CHEM 1411, 1412, PHYS 1401, 1402 BIOL 1406, 1407, 2420 ENVR 1401, 1402
Humanities (Core D)	040	3	One course from: HUMA 1301, PHIL 1301, ENGL 2322, 2323, 2327, 2328, 2331
Visual and Performing Arts (Core D)	050	3	One course from: ARTS 1301, DRAM 1310, MUSI 1306
U.S. History (Core E)	060	6	HIST 1301 and HIST 1302 **or** HIST 2301 and HIST 1302
Political Science (Core E)	070	6	GOVT 2301 and GOVT 2302
Social/Behavioral Sciences (Core E)	080	3	One course from: PSYC 2301, 2314, 2316, SOCI 1301, 1306, 2301, GEOG 1302, 1303
Computer Literacy (Core F)	090	4	BCIS 1405
Total Minimum Requirements		45	

Table 1: Matrix of General Education Student Learning Outcomes and Courses

	LISTENING: Listening at the college level means the ability to analyze and interpret various forms of spoken communication (**SLO1**).	READING: Reading at the college level means the ability to analyze and interpret a variety of printed materials (**SLO2**).	CRITICAL THINKING: Critical thinking means the ability to use qualitative and quantitative skills to evaluate ideas and empirical claims, and to develop alternative perspectives and conclusions (**SLO3**).	SPEAKING: Competence in speaking is the ability to communicate orally in clear, coherent, and persuasive language appropriate to purpose, occasion, and audience (**SLO4**).	COMPUTER LITERACY: Computer literacy at the college level means the ability to use computer-based technology in communication, solving problems, and acquiring information (**SLO5**).	WRITING: Competency in writing means the ability to produce clear, correct, and coherent prose adapted to purpose, occasion, and audience (**SLO6**).
ARTS 1301	Moderate	**Primary Focus**	Moderate	Moderate	Low/Minimal	Moderate
BCIS 1405	Low/Minimal	Moderate	Moderate	Low/Minimal	**Primary Focus**	Moderate
BIOL 1406	Moderate	Moderate	**Primary Focus**	Low/Minimal	Low/Minimal	Moderate
BIOL 1407	Moderate	Moderate	**Primary Focus**	Low/Minimal	Low/Minimal	Moderate
BIOL 2420	Moderate	Moderate	**Primary Focus**	Low/Minimal	Low/Minimal	Moderate
CHEM 1411	Moderate	Moderate	**Primary Focus**	Low/Minimal	Low/Minimal	Moderate
CHEM 1412	Moderate	Moderate	**Primary Focus**	Low/Minimal	Low/Minimal	Moderate
DRAM 1310	**Primary Focus**	Moderate	Moderate	Moderate	Low/Minimal	Low/Minimal
ENGL 1301	Moderate	Moderate	Moderate	Low/Minimal	Low/Minimal	**Primary Focus**
ENGL 1302	Moderate	**Primary Focus**	Moderate	Low/Minimal	Low/Minimal	**Primary Focus**
ENGL 2322	Moderate	**Primary Focus**	Moderate	Moderate	Low/Minimal	Moderate
ENGL 2323	Moderate	**Primary Focus**	Moderate	Moderate	Low/Minimal	Moderate
ENGL 2327	Moderate	**Primary Focus**	Moderate	Moderate	Low/Minimal	Moderate
ENGL 2328	Moderate	**Primary Focus**	Moderate	Moderate	Low/Minimal	Moderate
ENGL 2331	Moderate	**Primary Focus**	Moderate	Moderate	Low/Minimal	Moderate
ENVR 1401	Moderate	Moderate	**Primary Focus**	Low/Minimal	Low/Minimal	Moderate
ENVR 1402	Moderate	Moderate	**Primary Focus**	Low/Minimal	Low/Minimal	Moderate
GEOG 1302	Moderate	**Primary Focus**	Moderate	Low/Minimal	Low/Minimal	Moderate
GEOG 1303	Moderate	**Primary Focus**	Moderate	Low/Minimal	Low/Minimal	Moderate
GOVT 2301	Moderate	**Primary Focus**	Moderate	Low/Minimal	Moderate	Moderate
GOVT 2302	Moderate	**Primary Focus**	Moderate	Low/Minimal	Low/Minimal	Moderate
HIST 1301	Moderate	**Primary Focus**	Moderate	Low/Minimal	Low/Minimal	Moderate
HIST 1302	Moderate	**Primary Focus**	Moderate	Low/Minimal	Low/Minimal	Moderate
HIST 2301	Moderate	**Primary Focus**	Moderate	Low/Minimal	Low/Minimal	Moderate
HUMA 1301	Moderate	**Primary Focus**	Moderate	Moderate	Low/Minimal	Moderate
MATH 1314	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Low/Minimal
MATH 1316	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Low/Minimal
MATH 1324	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Low/Minimal
MATH 1325	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Low/Minimal
MATH 1332	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Low/Minimal
MATH 1342	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Low/Minimal
MATH 1350	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Low/Minimal

	LISTENING: Listening at the college level means the ability to analyze and interpret various forms of spoken communication (**SLO1**).	READING: Reading at the college level means the ability to analyze and interpret a variety of printed materials (**SLO2**).	CRITICAL THINKING: Critical thinking means the ability to use qualitative and quantitative skills to evaluate ideas and empirical claims, and to develop alternative perspectives and conclusions (**SLO3**).	SPEAKING: Competence in speaking is the ability to communicate orally in clear, coherent, and persuasive language appropriate to purpose, occasion, and audience (**SLO4**).	COMPUTER LITERACY: Computer literacy at the college level means the ability to use computer-based technology in communication, solving problems, and acquiring information (**SLO5**).	WRITING: Competency in writing means the ability to produce clear, correct, and coherent prose adapted to purpose, occasion, and audience (**SLO6**).
MATH 1351	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Low/Minimal
MATH 2412	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Low/Minimal
MATH 2413	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Low/Minimal
MATH 2414	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Low/Minimal
MUSI 1306	**Primary Focus**	Moderate	Moderate	Low/Minimal	Moderate	Low/Minimal
PHIL 1301	Moderate	**Primary Focus**	Moderate	Moderate	Low/Minimal	Moderate
PHYS 1401	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Moderate
PHYS 1402	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate	Moderate
PSYC 2301	Moderate	**Primary Focus**	Moderate	Low/Minimal	Low/Minimal	Moderate
PSYC 2314	Moderate	**Primary Focus**	Moderate	Moderate	Low/Minimal	Moderate
PSYC 2316	Moderate	**Primary Focus**	Moderate	Low/Minimal	Low/Minimal	Moderate
SOCI 1301	Moderate	**Primary Focus**	Moderate	Low/Minimal	Moderate	Moderate
SOCI 1306	Moderate	**Primary Focus**	Moderate	Low/Minimal	Low/Minimal	Moderate
SOCI 2301	Moderate	**Primary Focus**	Moderate	Low/Minimal	Low/Minimal	Moderate
SPCH 1315	Moderate	Low/Minimal	Moderate	**Primary Focus**	Low/Minimal	Low/Minimal
SPCH 1318	**Primary Focus**	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate
SPCH 1321	Moderate	Moderate	Moderate	**Primary Focus**	Low/Minimal	Moderate

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General Education Core Curriculum Competencies Assessment Chart
(2010-2011 & 2011-2012)

1. Core Curriculum Intellectual Competency	2. Criteria For Success	3. Means of Assessment	4. Summary of Data Collected	5. Use of Results
LISTENING: Listening at the college level means the ability to analyze and interpret various forms of spoken communication.	75% of students will score 70% or higher on the final course project covering SPCH 1318 SLOS #1, #3, #6	Final course project	% of students meeting criteria in SPCH 1318 SLOs (Fall 2010) SLO #1 – 74% SLO #3 – 76% SLO #6 – 72%	Criteria not met. Speech faculty increased peer teaching through group work, group discussions, and a considerable amount of outside media in order to relate the course material to the current social climate. Students have commented that they enjoy the media and feel more involved in class and connected to the material. There is also an increase in the use of online components in course delivery. By taking online quizzes before coming to class, students must read the material beforehand, and as a result, class time can be spent discussing the material at a deeper level while applying it to real-world concepts. All course materials, quizzes, exams and grades are posted online. Students mention that they like the easy online access to their grades and the quick feedback. Data indicates that improvements in this student learning outcome

				are occurring over time. Speech faculty will continue to work with the Division Chair of Fine Arts and Communication to develop stronger classroom activities to improve this program student learning outcome.
READING: Reading at the college level means the ability to analyze and interpret a variety of printed materials.	65% of students taking the CAAP test for reading will score at or above the national mean for community college students.	CAAP test (Administered in Spring 2012)	56% (46 of 82) of students taking the CAAP test for reading scored at or above the national mean for community college students.	Criterion not met. The Student Success Center with a dedicated Writing Center has been established to provide accessible and integrated tutoring services. The college's student success course (PSYC/EDUC 1300) now serves as a prerequisite/co-requisite for developmental courses in reading.
CRITICAL THINKING: Critical thinking means the ability to use qualitative and quantitative skills to evaluate ideas and empirical claims, and to develop alternative perspectives and conclusions.	60% of students taking the CAAP test for critical thinking will score at or above the national mean for community college students.	CAAP test (Spring 2012)	58% (46 of 82) of students taking the CAAP test for critical thinking scored at or above the national mean for community college students.	Criterion not met. In AY 2010-2011, Math 0407, Pre-Statistics was offered as a developmental course leading to Statistics. While the number of students taking Statistics has increased from 49 in AY 2009-2010 to 225 in 2011-2012, the success rate in the course has not significantly increased. Currently, faculty are examining student learning outcomes data in both Pre-Statistics and Statistics in an effort to improve success. Additionally, in the fall of 2011, faculty began constructing a new modular based form of developmental mathematics, leading to both Math 1314,

				College Algebra and Math 1342, Statistics. This new course design allows students to work at their own pace. This structure will allow students to complete their developmental mathematics requirement more efficiently, allowing them the flexibility to schedule their coursework around their work and family obligations. Eighty three students began the modularized program. Preliminary data shows an increase in retention and completion of developmental math courses. Specifically: •50 (60.2%) have re-enrolled in the modular program this spring. Of those 50, 43 completed at least 5 modules (minimum requirement for passing). Of those 50, 7 completed less than the minimum of 5 •11 (13.3%) finished the program and are TSI complete. Of those 11, 9 have enrolled in college level math courses. Of those 11, 2 are not enrolled in math this spring •5 (6%) students have re-enrolled in traditional developmental math courses •1 (1.2 %) student did not re-enroll in any math course this spring •16 (19.3%) students did not enroll at Brazosport College this spring.
SPEAKING:	75% of students	Final course project	% of students meeting	Criteria met.

Competence in speaking is the ability to communicate orally in clear, coherent, and persuasive language appropriate to purpose, occasion, and audience.	completing SPCH 1315 will score 70 or higher on the final course project covering SLOs #1, 2, #3, #4 & #7 in SPCH 1315.		criteria in SPCH 1315 SLOs (SP2010) SLO #1- 75% SLO #2 – 78% SLO #3 – 82% SLO #4 – 76% SLO #7 – 76%	In Speech 1315, greater emphasis was placed on appropriate uses of media such as PowerPoint and other visuals such as graphs or images in presentations, and one week was devoted entirely to workplace presentations and communication. Students learned to use each other as a resource and speeches got progressively better. Students also learn to use PowerPoint to supplement rather than take over the presentation. Students have responded to the relevance of this, especially once they critique examples as audience members. They also responded to the importance of job interviews and workplace presentations and the relevance of learning what works and doesn't work in both. In Speech 1318, group projects were completed through discussion forums where each group of students has access to a group-specific file exchange and discussions board to talk through the topics they are given. Students who don't feel comfortable discussing with the class as a whole open up with their smaller groups, and as the class goes along, they start participating more in the general discussion. The Student Success Center with a dedicated Writing Center has

				been established to provide accessible and integrated tutoring services, including speech assistance.
COMPUTER LITERACY: Computer literacy at the college level means the ability to use computer-based technology in communication, solving problems, and acquiring information.	70% of students will score 70% or higher on the final exam covering SLOs #1, 2, #3, #4 in BCIS 1405	Exams covering BCIS 1405 SLOs #1, #2, #3, #4	Students met criteria in exams covering BCIS 1405 SLOs #1, #2, #3, #4 (Fall 2012) SLO #1 – 76% SLO #2 – 75% SLO #3 – 74% SLO #4 - 72%	Criteria met. The Learning Frameworks course was made a requirement for all first-time-in-college students in the Fall of 2010. Three BCIS tutors were hired to work in the Student Success Center to support computer literacy. Focus groups of faculty and students indicate that computer literacy skills have been strengthened with these changes. The established criteria will be increased to 75%.
WRITING: Competency in writing is the ability to produce clear, correct, and coherent prose adapted to purpose, occasion, and audience.	60% of students taking the CAAP test for writing will score at or above the national mean for community college students.	CAAP test (Spring 2012)	60% (49 of 82) of students taking the CAAP test for writing scored at or above the national mean for community college students.	Criterion met. The Student Success Center with a dedicated Writing Center has been established to provide accessible and integrated writing tutoring services. The college's student success course, Learning Frameworks, now serves as a requirement for all first-time-in-college students in writing.

Summary and Overview of Programmatic Changes

Core Component B – Mathematics

AY 2011-2012

Need for Change: Despite past efforts to improve the completion rates in core math courses, students were struggling to successfully complete developmental classes. Specifically, part time students with jobs performed the lowest. For example, in AY 2010-2011 in Math 0408, Intermediate Algebra, the success rate for full time students was 65.6% (n=221) compared to only 49.2% (n=374) for part time students (significant difference at α=0.01). This trend was seen in every developmental mathematics course over four academic years studied. Faculty concluded that while many unsuccessful part time students were motivated to learn and work hard, their work and family obligations interfered with their ability to attend class and complete coursework.

Recommendation: Beginning in the fall of 2011, faculty began constructing a new modular based form of developmental mathematics, leading to both Math 1314, College Algebra and Math 1342, Statistics. This new course design allows students to work at their own pace. This structure will allow students to complete their developmental mathematics requirement more efficiently, allowing them the flexibility to schedule their coursework around their work and family obligations.

Results: This program will be piloted in the fall of 2012. Within two years, faculty expect to see a significant improvement in the percent of students who start in developmental mathematics and successfully complete core curriculum mathematics courses.

Core Component C – Natural Sciences

Department of Chemistry

AY 2011-12

Planning: Based on absentee records from previous courses, students were missing numerous classes due to work conflicts. A pilot study was planned for one of our chemistry courses in which

the instructor recorded her lectures using Camtasia software which allowed her to post lectures on our distance learning website (Desire2Learn). This allowed students to go to the website and to either review the lecture or view a lecture they had missed in class.

Implementation: The pilot was developed in the spring of 2012 for one of our chemistry courses. The course was conducted in the summer of 2012 using the Camtasia software.

Validation: Instructor noticed an improvement in grades as well as several favorable comments on the evaluation form concerning the change. Further evaluation is needed to validate the change.

Further Action: More data need to be gathered to evaluate the change, so plans are to continue the pilot into the fall semester 2012. If the data indicate substantial improvements then considerations will be made to use the software in other courses.

AY 2011-12

Planning: Based on evaluating previous grades in some of our chemistry classes it was noted that there is a strong correlation between the online homework grades and the final grades assigned in the class. As a pilot, one chemistry course will increase the homework assignment from 10% of the final grade to 20%. This increase will be made in hopes of motivating students to put more emphasis on doing the homework and thereby improving their exam grades.

Implementation: Online course grades and final grades were compared during 2011/2012 school year as well as previous years. The homework assignment will be changed from 10% to 20% in the fall 2012.

Validation: The success rate of students will be evaluated to compare previous student success rates to success rates after change.

Further Action: If this change improves the success rate, the department will consider further study and possibly making this change to other chemistry courses.

Core Component C – Natural Sciences
Department of Physics

AY 2010-11 and 2011-12

Plan: Studies have suggested that student success on exams is significantly higher using web-delivered homework compared to the traditional paper-and-pencil assignments. A pilot physics course will be developed using an online homework assignment and grading tool.

Implementation: The physics course has been developed and will be delivered in fall 2012.

Validation: Outcome assessments will be compared between using traditional homework assignments and future web-delivered homework assignments.

Further Action: Comparison of outcome assessments will continue until data are available to determine student success in the pilot physics course. If this system leads to higher student success rates, other courses will be considered for this type of homework system.

Core Component E – History, Government, Social Sciences

AY 2007-08 through 2011-12

Online Courses

Challenges: Universally faculty identified a common concern with the student completion rate in their Core Component E online classes compared to their face-to-face classes. Although the withdrawal rates varied from course to course, the overall withdrawal rate averaged in the 40% range in the online classes as compared to an average withdrawal rate of 9% for face-to-face classes in this area.

Changes: Departmental faculty outlined strategies used in face-to-face classes that seemed to contribute to student success in order to determine if they could apply these in an online format. It was agreed that the first few class meetings are critical in capturing student interest and establishing a connection to the class. Could the same type of connection be established in an online class? It was felt that the techniques used in a conventional class had some application for online classes. Instructors closely monitored student activity within D2L during the first few class days to make sure each student was logging in and participating in the class. Experience indicated to instructors that the first few days were critical. Students who did not login during the first week of class were the most likely to withdraw from the class. Where it was discovered that a student had not logged in the instructor would make a phone call to the student. Another strategy involved having students interact with classmates the first week by posting a brief autobiography on the D2L discussion board with the instructor acknowledging this posting with a brief welcome comment for each student.

The major factors that contribute to student completion rates in online classes are (1) frequent engagement requiring students to complete activities within their D2L course and (2) timely feedback from the instructor.

Results: Two years after implementation of these changes, students in face-to-face classes still have a higher completion rate than students in online classes, but the gap has been narrowed (now a 32% withdrawal rate, down from 40%). It is worth noting that class GPAs for online classes are frequently higher than for face-to-face classes. There also appears to be a higher comfort level with online learning among students and faculty. Even first-time online students are savvier than their counterparts of just a few years ago.

Dual-Credit Courses

Opportunities: Government, History, Humanities, and Psychology professors travel to four different high school campuses to deliver dual credit classes to students enrolled at those schools. Most of these students are juniors and seniors and are among the most academically gifted students on their respective campuses. Enrollments are usually strong for these courses and the completion rates are very good. Also retention rates are good from History 1301 into History 1302 and Government 2301 into Government 2302.

Challenges: The high school setting and environment present some potential challenges in delivering the same program opportunities to students at those sites as those offered and presented in the college campus environment. One concern consistently noted by faculty, that is common to each campus, is the degree to which extra-curricular activities can impact the classroom. A good effort is made by high school administrators and staff to create a favorable environment for college classes. However, the reality is that we are somewhat guests on these campuses and there are times when college classes will be impacted by that fact. For a variety of reasons students may miss a number of class meetings during the semester. For students at these high school sites this is somewhat more problematic than it is for students enrolled on the main campus.

Students at the high school sites rarely have time to visit with their instructors outside of class. Instructors are available, but student schedules do not usually permit them any free time to meet with these visiting instructors outside of class.

Changes: With these considerations in mind faculty began to explore ways to provide these students with opportunities for more instructor-student interaction and increased access to course content. The offering of online and hybrid course formats has greatly expanded in recent years. It became clear that these formats could become an important component in our dual credit classes.

Faculty recognized that while most students today are ready, able, and eager to engage in this type of learning environment, some students would need additional instructor and staff assistance in becoming more comfortable with aspects of the technology involved with an online/hybrid format. Staff support at each high school is also a very important component in the success of the hybrid format. In recent years the technology to support online course components has become more available at the high schools. Most students have access to personal computers in their homes or school labs or libraries. Special student accommodations are addressed in these classes as would be the case in all college classes.

Classes with an online component provide the benefit of face-to-face instruction with the enrichment of added online instruction. Each course has specific classroom meeting dates and times, in addition to the online component which adds a combination of teaching tools, such as video, audio, document files, power points, discussion boards, and unit quizzes. Students benefit from the classroom experience through personal contact with their instructor and participation in classroom-based lectures and presentations while also interacting with the instructor and fellow students in an online setting. Hybrid classes meet twice a week and are taught by e-learning certified instructors using the Desire2Learn (D2L) class management system.

Results: Results unfortunately are inconclusive. Our experience has been that the success of the hybrid format varies widely from campus to campus and from instructor to instructor. The same student behaviors that lead to success in a traditional class are applicable for courses with an online component.

Core Component A – English and Speech

Challenges: Tracking of GPA, Success Rates, and Withdrawal Rates for Core Component A courses over a five year period shows a drop-off in student success in this core area for 2011-12

(see **Table 1 - Core Area GPA and Success Rate History** below)**.** The success rate in English went from an average of 76% in the years 2007 – 2011 to 69% in 2011-12 and the success rate in speech went from an average of 84% in the years 2007 – 2011 to 72% in 2011-12.

Changes: A new developmental English course, ESOL Oral Communication, was added to meet the needs of students who are not native speakers of English and need additional practice in listening and speaking before moving to college-level English. It also helps students who are otherwise ready for college-level English but nevertheless want more practice.

Data that spanned fall 2004 to summer 2009 showed that English 1301 (online) and1302 (online) had higher percentages of withdrawals and lower success rates (less than a C) compared to face-to-face English classes. A later report that spanned Fall 2007 to Spring 2010 also showed that English 1301 and 1302 online classes had higher withdrawal rates and lower success rates compared to other college-wide online courses. Within the Division of Communication & Fine Arts, an additional report that spanned fall 2007 to spring 2010 showed that of the 427 students in Art Appreciation (online), 68% were successful with grades of A, B, or C. Unsuccessful students received a D, F, or W. In English classes (online), of the 309 students, 41% were successful. In Music Appreciation (online) of the 147 students, 61% were successful.

In response to these reports, several actions have occurred. The English instructor in conjunction with the Director of the Employee Development Center totally redesigned the English 1301 and 1302 online courses. As much as it is possible, the instructor has recreated a face-to-face classroom in an online setting. The instructor has added short video segments, more interaction with students and a more streamlined and easier to follow design. The instructor also tried to troubleshoot students' computer hardware and software issues and problems early in the semester. Unfortunately,

her efforts appear to have made no significant difference, as the withdrawal rate has not changed. However, for those students who persist, the success rate is very high.

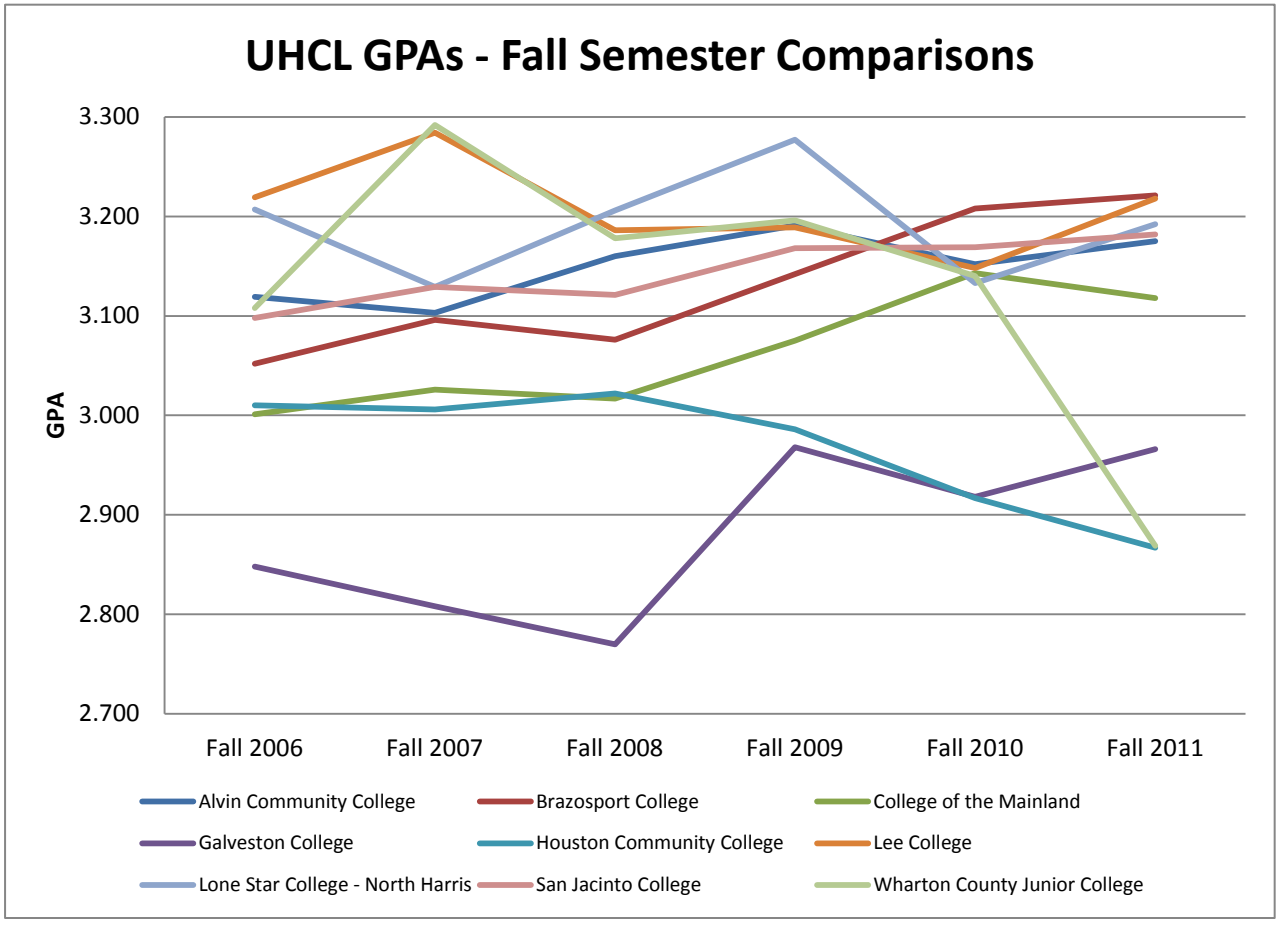
In both Speech 1315 and 1318, one professor has increased peer teaching through group work, group discussions, and a considerable amount of outside media in order to relate the course material to the current social climate. Students have commented that they enjoy the media and feel more involved in class and connected to the material. There is also an increase in the use of online components in course delivery. By taking online quizzes before coming to class, students must read the material beforehand, and as a result, class time can be spent discussing the material at a deeper level while applying it to real-world concepts. All course materials, quizzes, exams and grades are posted online. Students mention that they like the easy online access to their grades and the quick feedback. In Speech 1315, greater emphasis is placed on appropriate uses of media such as PowerPoint and other visuals such as graphs or images in presentations, and one week is devoted entirely to workplace presentations and communication. Students learn to use each other as a resource and speeches get progressively better. Students also learn to use PowerPoint to supplement rather than take over the presentation. Students respond to the relevance of this, especially once they critique examples as audience members. They also respond to the importance of job interviews and workplace presentations and the relevance of learning what works and doesn't work in both. In Speech 1318, group projects are done through discussion forums where each group of students has access to a group-specific file exchange and discussions board to talk through the topics they are given. Students who don't feel comfortable discussing with the class as a whole open up with their smaller groups, and as the class goes along, they start participating more in the general discussion.

Table 1 – Core Area GPA and Success Rate History

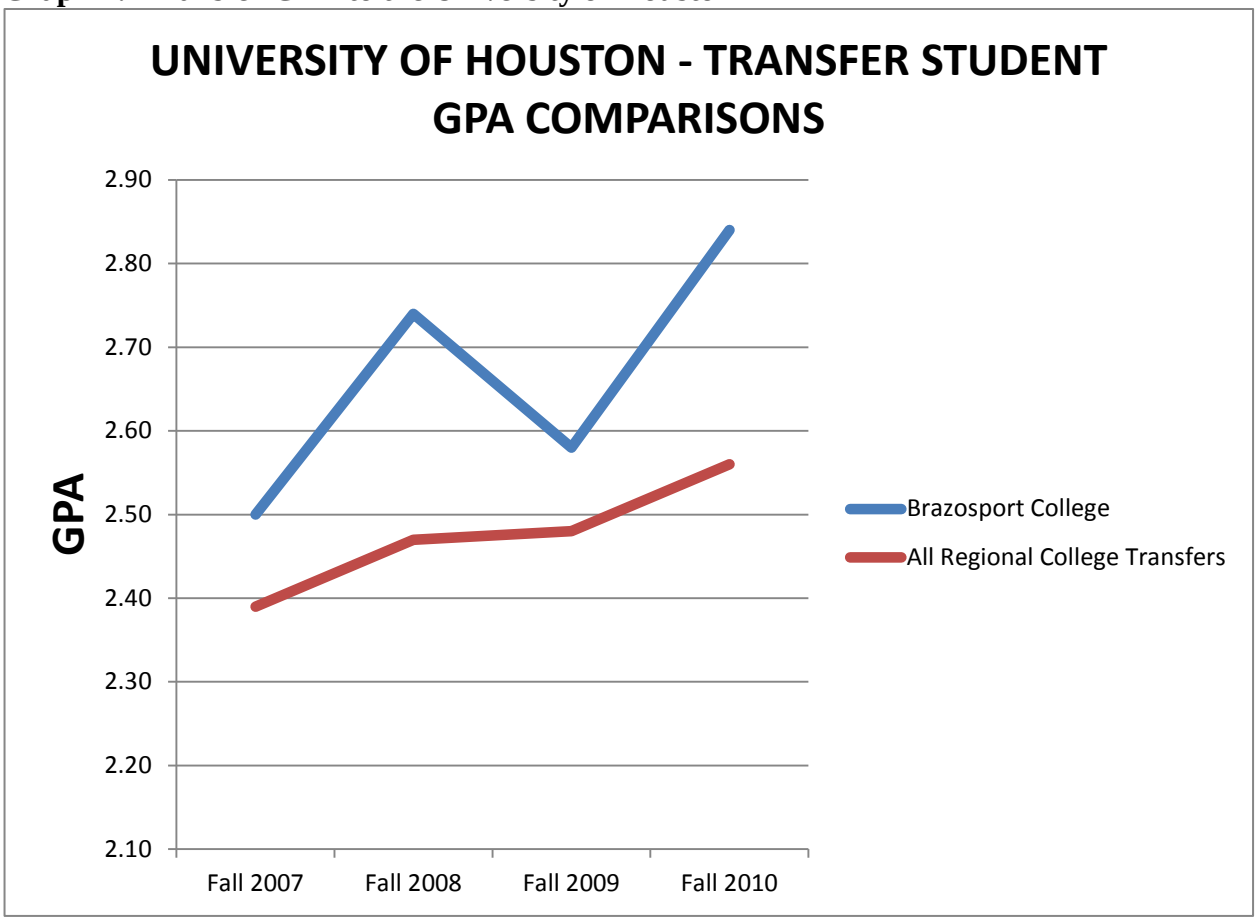
Core Cmpt Area	Core Course	2007-08			2008-09			2009-10			2010-11			2011-12		
		GPA	Success Rate	Withdrawal Rate	GPA	Success Rate	Withdrawal Rate	GPA	Success Rate	Withdrawal Rate	GPA	Success Rate	Withdrawal Rate	GPA	Success Rate	Withdrawal Rate
A	ENGL	2.72	77.72%	9.71%	2.66	75.86%	9.41%	2.71	75.38%	9.86%	2.69	76.58%	7.79%	2.72	68.65%	6.49%
A	SPCH	3.11	84.17%	7.14%	3.01	82.95%	5.87%	3.13	87.15%	4.88%	3.09	83.58%	7.53%	3.07	71.79%	7.28%
B	MATH	2.09	51.96%	22.88%	1.94	51.68%	19.90%	2.15	57.50%	17.92%	2.02	54.51%	17.63%	1.94	43.96%	17.00%
C	BIOL	2.68	70.54%	16.16%	2.62	72.14%	14.62%	2.75	72.50%	15.08%	2.75	72.84%	16.36%	2.57	55.40%	18.93%
C	ENVR							3.13	90.48%	4.76%	2.93	95.35%	3.49%	3.15	90.18%	3.57%
C	CHEM	2.66	69.95%	17.96%	2.68	74.31%	12.11%	2.68	78.28%	8.58%	2.69	78.86%	9.72%	2.66	68.29%	9.27%
C	PHYS	3.06	76.14%	18.18%	3.32	87.10%	9.68%	2.92	69.51%	24.39%	3.03	73.29%	19.18%	3.14	57.52%	14.38%
D	ARTS	2.97	80.94%	7.05%	2.93	78.54%	7.07%	2.75	76.72%	7.10%	2.55	72.91%	8.76%	2.31	62.33%	11.24%
D	DRAM				2.95	65.38%	19.23%				2.32	55.17%	10.34%			
D	MUSI	2.53	61.11%	16.67%	2.40	60.69%	18.62%	2.59	69.04%	12.69%	2.20	55.78%	19.60%	2.73	58.93%	15.63%
D	ENGL LIT	3.04	80.00%	10.70%	3.01	74.85%	13.17%	3.04	75.90%	13.33%	2.68	66.85%	16.30%	3.05	73.53%	12.35%
D	HUMA	2.71	74.50%	9.84%	2.55	68.07%	12.45%	2.47	67.72%	11.41%	2.50	68.49%	12.90%	2.51	66.18%	14.50%
D	PHIL	3.25	91.30%	4.35%	2.40	63.79%	8.62%	2.69	80.00%	3.33%	3.23	75.44%	15.79%	3.00	74.58%	10.17%
E	GOVT	2.81	81.10%	6.12%	2.76	79.73%	6.83%	2.74	81.46%	6.40%	2.74	78.33%	7.18%	2.85	73.88%	5.61%
E	HIST	2.72	78.65%	7.24%	2.68	76.66%	6.72%	2.69	74.88%	7.86%	2.68	74.66%	8.65%	2.61	68.56%	7.22%
E	PSYC	2.62	69.22%	13.33%	2.66	71.78%	11.40%	2.65	71.38%	9.74%	2.60	68.86%	12.38%	2.73	69.95%	7.21%
E	SOCI	3.42	87.60%	6.74%	3.34	89.36%	3.92%	3.45	89.33%	5.71%	3.54	90.13%	7.59%	3.55	88.08%	7.25%
F	BCIS	2.47	58.96%	25.43%	2.44	64.30%	17.16%	2.78	72.58%	14.94%	2.59	67.52%	15.84%	2.35	56.65%	18.67%

Of particular importance, as a measure of institutional effectiveness, is the comparison of transfer students from BC to the University of Houston - Clear Lake (UHCL) and to the University of Houston (UH). This is due to the fact that most of BC's completers transfer to UHCL or UH. Results for the last 5 years show that BC students perform at or above the level of UHCL native students and above the average of all transfer students going to UH. This measure is an excellent indicator that BC's AA graduates successfully transfer to 4-year institutions, which has to be considered as one of the key measures of effectiveness for core curriculum.

Graph 1: Transfer GPA to the University of Houston – Clear Lake and Comparisons to Other Area Colleges



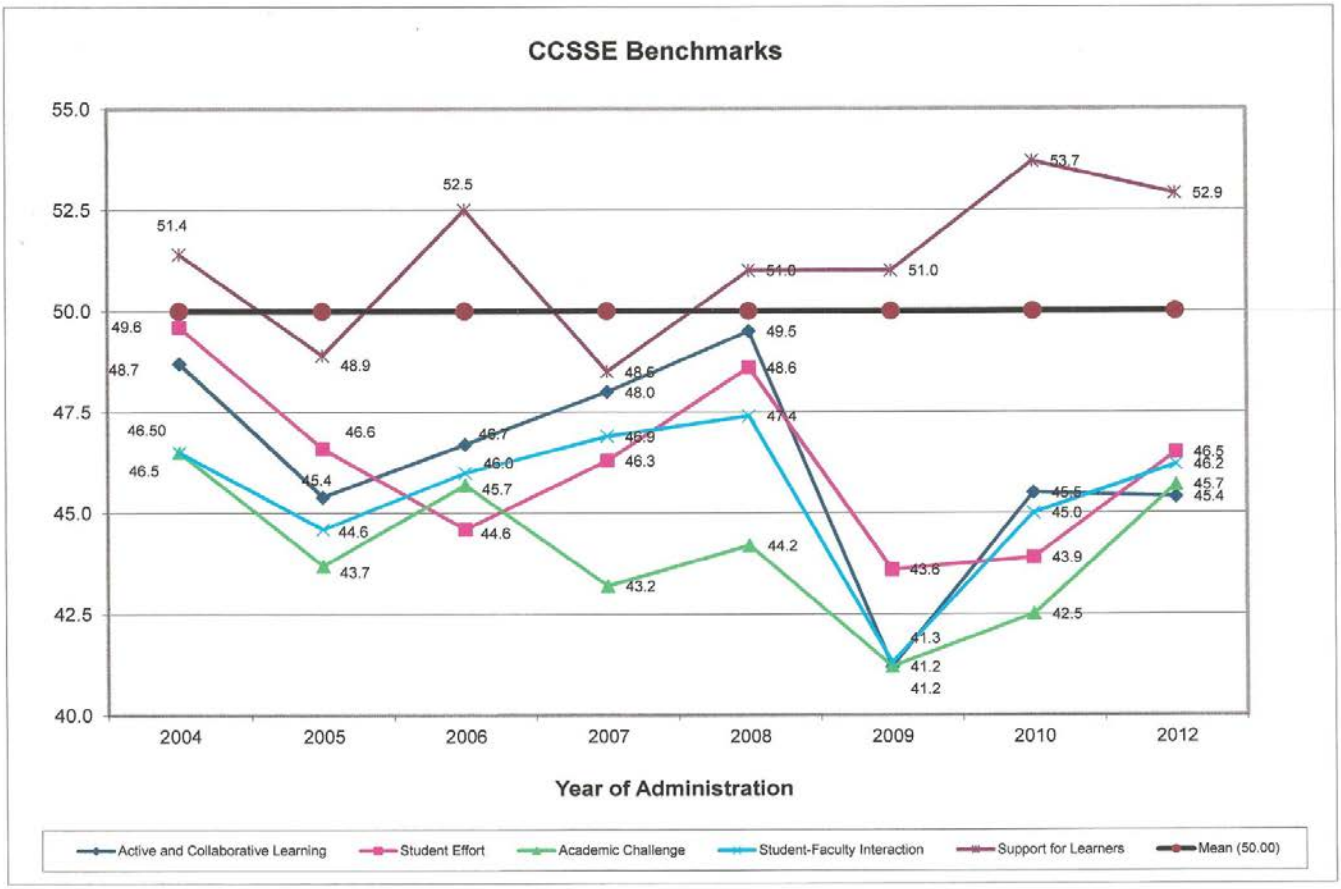
Graph 2: Transfer GPA to the University of Houston



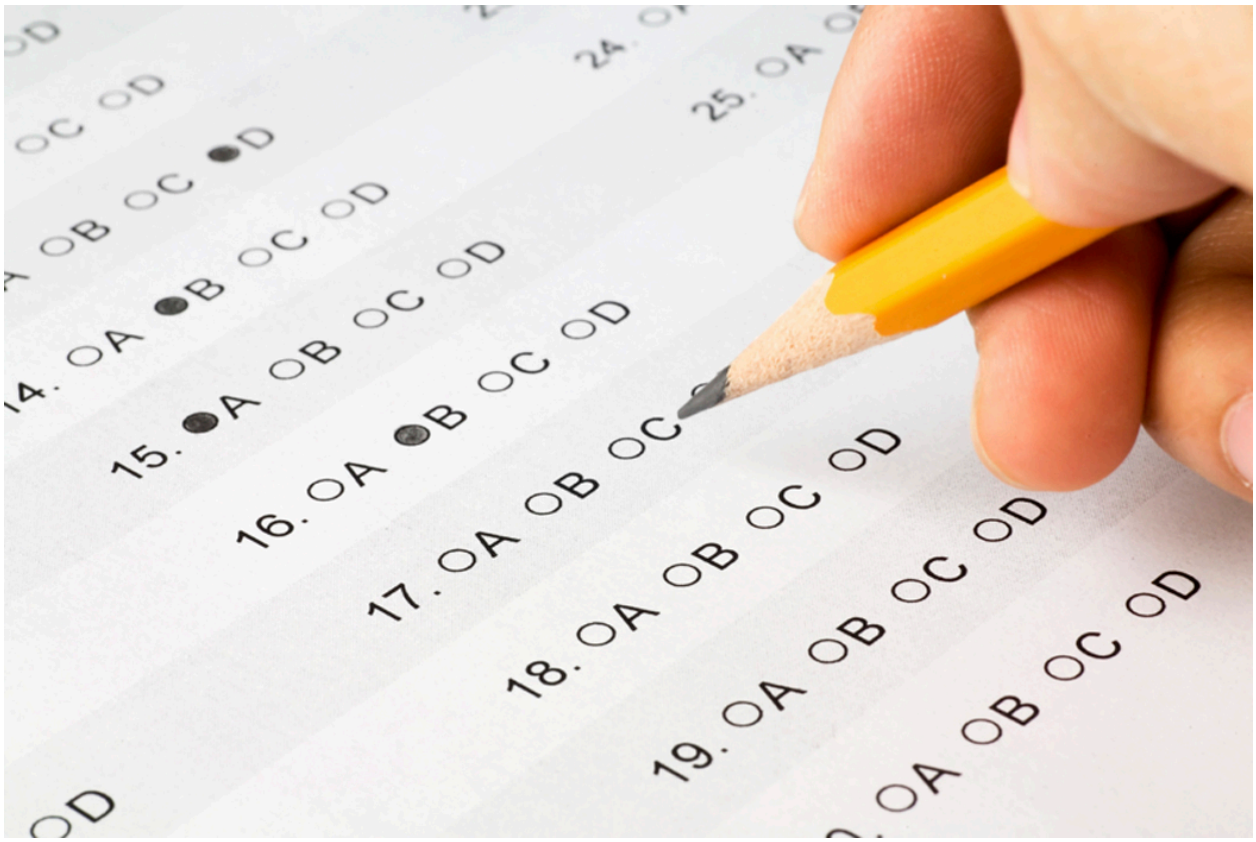
As a part of our core evaluation process, we track several benchmarks with other similar institutions by use of the Community College Survey of Student Engagement (CCSSE). In the 2009 survey there was a significant decline in several benchmarks that indicated some changes were needed in the presentation of our Core instruction [Graph 3 - 2009]. Those benchmarks are: Active and Collaborative Learning, Student Effort, Academic Challenge, Student-Faculty Interaction, and Support for Learners. An analysis by representatives of our Core faculty found that there were a relatively small number of survey items in the 2009 survey that were common to most of these benchmarks and in which we were below average. These included students contributing to class discussions, making presentations, working with other students on presentations and written assignments, preparing for class, preparing presentation drafts,

synthesizing and organizing ideas, and discussing assignments with the instructor. As a result, core curriculum faculty were encouraged to increase the reading and writing assignments in their courses and to also increase the amount of critical thinking, synthesis, and analysis that those written assignments would require of the student. At the same time, we increased our tutoring budget and opened a writing center in our Student Success Center to provide support for these reading/writing enhancements in the various core courses. As can be seen from Graph 3 our benchmarks have improved in each of the following two survey years, providing faculty with confirmation that their curricular changes are producing positive results.

Graph 3 – CCSSE Benchmarks to Similar Colleges



BRAZOSPORT COLLEGE
2011 PROGRAM REVIEW



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Brazosport College – 2011 Program Review Summary

Overview/Purpose: Program review is the systematic and ongoing process of assessing the quality of Brazosport College's academic programs. Two fundamental goals guide the process of program review: 1) to assure that Brazosport College faculty and administration provide high quality undergraduate academic programs, and 2) to identify opportunities for program improvement.

Each program section contains a Basic Program Review (BPR) form, which can include one or more pages of referenced information, and one or more Performance Success Indicator (PSI) sheets, which provide data summaries for the respective program components. This Program Review Summary reflects data from the 2011/12 reporting year. Each BPR form is designed to discuss factors of program productivity, viability, and quality, to provide a brief description of data utilization for assessment/review purposes, and to summarize any recommendations received by advisory committees and/or other audiences.

Each PSI form shows data for a maximum of five reporting years. To remain consistent with the state's reporting requirements and data publication practices, every reporting year starts with the fall term and ends with the summer term.

The table below provides a more detailed explanation of the first set of fields of the PSI.

1. No. of Discipline Sections	Discipline-specific sections of the required program courses offered
2. Duplicated Headcount	Total of course seats taken by program enrollees during the period
3. Discipline Specific Contact Hours	Contact hours of program enrollees across discipline courses
4. % Sections w/ FT Faculty	Percentage of sections (1.) taught by FT Faculty
5. Course Success Rate	Total pass rate (A-D) for program courses
6. Course Failure Rate	Total F percentage for program courses
7. Course Withdrawal Rate	Total W percentage for program courses
8. No. of Awards	Number of awards granted by the program (certificates & degrees)
9. No. of Graduates	Number of degrees granted during the period
10. % Successful Outcomes	Percentage of completers employed or continuing education

BASIC PROGRAM REVIEW FORM (BPR)

Program:	Chemical Technology (AAS)
Program Director:	Gary Hicks
Review Period:	Fall 2011 – Summer 2012
Date of Last Review:	October 2010
Review Participants:	Gary Hicks – Program Director, Bennett Willis – Process Technology faculty, Advisory Committee
Academic Dean:	Dr. Lynda Villanueva
Description of the Review Process:	Determination of outcomes to be assessed for the program academic year. Review of performance indicators such as enrollments, number of awards, graduate and employer surveys, feedback from advisory committee. Development of a prescriptive plan based upon the program assessment results. Monitor impact of prescriptive plan and adjust as needed based on results. Incorporate and use results as part of the College's long range strategic and budgetary plan.

Part I: Program Productivity

Program Enrollment

	2008-09	**2009-10**	**2010-11**	**2011-12**	**Change '08 to '12**
1. No. of Discipline Sections	73	60	102	104	42%
2. Duplicated Headcount	856	791	1176	1399	63%
3. Discipline Specific Contact Hrs	72304	65008	90464	112528	56%
8. No. of Awards	31	30	26	31	0%
9. No. of Graduates	31	30	25	31	0%
10. % Successful Outcomes	86.8%	88.0%	N/A	N/A	1.3% (from 09-09)

Overview and Analysis of Findings:

- As evidenced by the increases in course sections, duplicated headcount, and contact hours, program course enrollment continues to grow.

- Program enrollment continues to meet the demand for job openings in Texas and exceeds the State College growth trend for Chemical Technology related programs.

- Awards (degrees and certificates) have grown and far exceed the minimum program goal of at least 15 every three years.

- The percentage of successful outcomes has consistently been in the high eighties and exceeds the state's requirement of 85%. The data for years 2010-11 and 2011-12 have yet to be reported by the Texas Higher Education Coordinating Board. However, the change from 2008-09 to 2009-2010 has increased by 1.3%. As discussed in the last program review and related advisory committee meetings, requiring a 2-year degree is not consistent within the hiring practices of the area's petro-chemical companies. Students are hired near the completion of their degree by companies who do not require the two year degree.

Part II: Program Viability

The AAS in Chemical Technology prepares students for occupations in the lab technician and process operations fields. The American Chemical Society and the National Science Foundation have recognized Brazosport College's Chemical Technology degree program for its innovative curricula and its success in training process technicians.

Workforce Demand:

- Texas is the nation's largest chemicals producer, manufacturing 14% of the country's entire chemical output. The Gulf Coast complex of chemical plants and refineries is the largest petrochemical complex in the world, home to over 200 chemical plants. The state's largest chemical plant, Dow Chemical, is located in the College's service area. At least 124 of Texas' 254 counties have some amount of chemical manufactured output.

- The last survey completed to predict petro-chemical job needs in this region was a four-county survey in 2008. This survey showed 10,000 people would need to be hired in this region by 2012.

- In 2005, the Texas Workforce Commission issued a report recommending that industries partner "with community colleges and technical schools to strengthen a *workforce pipeline* of technical skills and craft talent by strengthening curriculum development and establishing certification standards along emerging industry requirements." Additionally, the report states that "the critical mass of Texas' operating plants, pipelines, supply, and transportation will continue to generate

economies of scope and scale to the industry; however, capacity will need to be upgraded to retain a global leadership position."

- Petroleum Refining and Chemical Products is listed in the Governor's Industry Clusters meeting the requirements of offering a minimum annual salary of $30,000, having a favorable Growth-Replacement Ratio, have a wide Education Preference Range, and at least 500 people currently employed in the cluster.

- One of the applicable SOC codes 518091 (Chemical Plant and System Operator) is on the Gulf Coast Workforce Development Area Targeted Occupation List. While projected growth has decreased nationally (-12%), the percent change in Texas for this SOC has not. Average salary range for the occupational field is from $45,800 to $85,200 per year.

- Enrollment numbers continue to support the projected number of openings per year. The number of projected openings in Texas per year is 250 for Chemical Plant and Systems Operators.

- Brazosport College has a strong relationship with Dow Chemical and serves as the primary pipeline for new employees.

Part III: Program Quality

Faculty:

	2008-09	2009-10	2010-11	2011-12	Change '08 to '12
4. % Sections w/ FT Faculty	87%	100%	87%	100%	15%

- The program currently employs 8 full time faculty and 4 adjunct faculty members. All faculty members possess an Associate's degree in Chemical Technology and more than 3 years of work experience in the field. Given the proximity to Dow Chemical, this discipline is not difficult to staff with credentialed faculty.

- At least 87% percent of the courses are taught by full-time faculty. The trend in the reduction and/or increase of sections taught by full time faculty is due to the increase in the number of sections offered and the increased demands on full-time faculty to teach industry training classes.

Pass and Withdrawal Rates:

	2008-09	2009-10	2010-11	2011-12	Change '08 to '12
5. Course Success Rate	86%	82%	83%	75%	-13%
6. Course Failure Rate	14%	18%	17%	25%	79%
7. Course Withdrawal Rate	6%	7%	5%	4%	-33%

- Course failure rate increased as demonstrated in the last program review for academic years 2005-06 and 2006-07. As part of the College's participation in Achieving the Dream, Brazosport College has been engaged in the development of a strong culture of evidence to improve course success rates. This process has involved various strategies including the requirement of a student success course, professional development training for faculty, and improved efforts to record course level student learning outcome data. These changes are affecting the increased course success rate, and decreased failure and withdrawal rates. As a result, course success rates increased until the last academic year. This was examined in a faculty feedback session. Feedback from sessions indicated that this was reflective of an increased focus on defined course learning outcomes and their measurement and an increase in the number of dual/concurrent students and decreased preparedness for college.

Student Feedback:

Student feedback regarding the instruction of courses continues to be overwhelmingly positive. Response rates to graduate surveys once again exceed the targeted 60% and above range. This year, the response rate was 72%

Advisory Feedback:

As described in the 2007-2008 Chemical Technology Program Review, it was advised that the Chemical Technology Alliance Committee form a project team (see attached file - Minutes 12-3-2007 highlighted in yellow) to develop a recruitment strategy for high school students due to a need to recruit more students into the chemical technology program and related programs in order to meet expected future industry employment demands. The goal of the recruitment group was to implement a recruitment strategy by Fall of 2008. The recruitment strategy was developed by the team in the Fall of 2009. Evaluation of this strategy is reported in this program review.

Part IV: Student Learning/Program Outcomes

Process of Identifying Outcomes: Core course objectives for the Process Technology Program are determined by the North American Process Technology Alliance (NAPTA). All twenty colleges in North America that are endorsed by NAPTA are required to use these objectives in their courses. Additionally, faculty engage in regular meetings to make sure that outcomes are being addressed and assessed in all classes.

The faculty in the Chemical Technology program have developed a curriculum matrix showing the specific courses and sequences of courses in which students are presented with disciplinary content material and the opportunities to build appropriate skills. These matrices, constructed by the disciplinary faculty, link individual courses to the programmatic student learning outcomes, thereby ensuring that each program's curriculum provides adequate opportunity for its students to master the outcomes of that degree. Every course syllabus at Brazosport College includes course student learning outcomes and program student learning outcomes for the course. This careful connecting of course, program, and institution wide core curriculum student learning outcomes allows

for exploration and aggregation of assessment results at multiple levels of analysis, which supports sound interpretation of and response to assessment results.

The table below shows a curriculum matrix from the required primary components of the AAS in Chemical Technology. This matrix shows how the primary courses in the degree addresses programmatic learning outcomes.

Table 1: Matrix of Core Chemical Technology Program Student Learning Outcomes and Courses

	Demonstrate how to follow procedures to safely operate an analytical instrument to produce valid data which can be used in determining the identity or concentration of a sample (**SLO1**).	Demonstrate how to follow procedures to safely operate a wide variety of analytical instruments and critically evaluate data which can be used in determining the identity or concentration of a sample (**SLO2**).	Demonstrate a fundamental knowledge of the different functional groups of organic chemicals to safely perform laboratory experiments (**SLO3**).	Demonstrate a fundamental knowledge of organic synthesis in order to perform laboratory experiments with different families of organic compounds (**SLO4**).	Demonstrate an understanding of the fundamental inorganic chemistry which involves gases, liquids, and solids (**SLO5**).	Demonstrate an understanding of the fundamentals of physical chemistry which involves equilibrium, kinetics, thermodynamics, and electrochemistry (**SLO6**).	Explain how instruments function and how they are used to control plants (**SLO7**).	Describe the basic responsibilities and requirements of a process technician's job (**SLO8**).
CTEC 1441	Primary Focus	Moderate	Low/Minimal	Low/Minimal	Low/Minimal	Low/Minimal	Moderate	Low/Minimal
CTEC 2431	Moderate	Primary Focus	Low/Minimal	Low/Minimal	Low/Minimal	Low/Minimal	Moderate	Low/Minimal
CHEM 2423	Low/Minimal	Moderate	Primary Focus	Moderate	Low/Minimal	Moderate	Low/Minimal	Low/Minimal
CHEM 2425	Low/Minimal	Moderate	Moderate	Primary Focus	Low/Minimal	Moderate	Low/Minimal	Low/Minimal
CHEM 1411	Low/Minimal	Low/Minimal	Moderate	Low/Minimal	Primary Focus	Moderate	Low/Minimal	Low/Minimal
CHEM 1412	Moderate	Moderate	Low/Minimal	Low/Minimal	Moderate	Primary Focus	Low/Minimal	Low/Minimal
PTAC 1432	Moderate	Moderate	Low/Minimal	Low/Minimal	Moderate	Low/Minimal	Primary Focus	Moderate
PTAC 1302	Moderate	Moderate	Low/Minimal	Low/Minimal	Moderate	Low/Minimal	Moderate	Primary Focus

PROGRAM STUDENT LEARNING OUTCOME	CRITERIA FOR SUCCESS	MEANS OF ASSESSMENT	SUMMARY OF DATA COLLECTED	USE OF RESULT
Demonstrate how to follow procedures to safely operate an analytical instrument to produce valid data which can be used in determining the identity or concentration of a sample (**SLO1**).	75% of students enrolled in a CTEC 1441 will successfully demonstrate mastery of all tasks, as documented by lab worksheets.	Course lab worksheets	Results showed that 70% of students demonstrated good to outstanding subject knowledge of how to follow procedures to safely operate an analytical instrument to produce valid data which can be used in determining the identity or concentration of a sample as demonstrated by evaluation of lab worksheets by faculty.	Criterion of success not met. Examination of lab worksheets and disaggregated course student learning outcomes indicates a need to provide more activities to support the identification of samples. Chemical Technology will collaborate with industry partners to develop two new course activities. Criterion of success will remain at 75%.
Demonstrate how to follow procedures to safely operate a wide variety of analytical instruments and critically evaluate data which can be used in determining the identity or concentration of a sample (**SLO2**).	70% of students enrolled in a CTEC 2431 will successfully demonstrate mastery of all tasks, as documented by lab worksheets.	Course lab worksheets	Results showed that 70% of students demonstrated good to outstanding subject knowledge of how to follow procedures to safely operate a wide variety of analytical instruments and critically evaluate	Criterion of success met. While the minimum criterion of success was met, examination of lab worksheets and final exam scores and disaggregated course student learning outcomes for CTEC 2431 and CHEM 1412 indicated a need to

			data which can be used in determining the identity or concentration of a sample.	provide stronger foundational math skills (**SLO2 and SLO6**). More specifically, faculty reported the need for more review of basic math skills typically covered in developmental math courses. Two sections of MATH 0407 were created to support the Statistics and Industrial Mathematics Pathways Initiative. Based upon curriculum alignment discussions and industry advisor feedback, program requirements changed to include Industrial Mathematics. Counseling staff worked with the Division Chair of Office Administration and Computer Technology to advise students into the Industrial Mathematics Pathway. Criterion of success for program student learning outcome mastery will remain the same.

Demonstrate a fundamental knowledge of the different functional groups of organic chemicals to safely perform laboratory experiments (**SLO3**).	75% of students enrolled in a CHEM 2423 will successfully demonstrate mastery of all tasks, as documented by final exam score.	Course final exam	Results showed that 72% of students successfully demonstrated a fundamental knowledge of the different functional groups of organic chemicals to safely perform laboratory as documented by final exam score.	Criterion of success not met. Examination of disaggregated course student learning outcomes indicates a need to provide more activities to support the development of knowledge of different functional groups of organic chemical. Faculty members in Chemical Technology to develop additional course activities to support this outcome. Criterion of success will remain at 75%.
Demonstrate a fundamental knowledge of organic synthesis in order to perform laboratory experiments with different families of organic compounds (**SLO4**).	75% of students enrolled in a CHEM 2425 will successfully demonstrate mastery of all tasks, as documented by final exam score.	Course final exam	Results showed that 72% of students successfully demonstrated a fundamental knowledge of organic synthesis in order to perform laboratory experiments with different families of organic compounds as documented by final exam score.	Criterion of success not met. Examination of disaggregated course student learning outcomes indicates a need to provide more activities to support the development of knowledge of organic synthesis. Faculty members in Chemical Technology to develop additional course activities to support this outcome. Criterion of

				success will remain at 75%.
Demonstrate an understanding of the fundamental inorganic chemistry which involves gases, liquids, and solids (**SLO5**).	75% of students enrolled in a CHEM 1411 will successfully demonstrate mastery of all tasks, as documented by final exam score.	Course final exam	Results showed that 76% of students successfully demonstrated an understanding of the fundamental inorganic chemistry which involves gases, liquids, and solids as documented by final exam score.	Criterion of success met. While this criterion has been met, the faculty in this program have chosen to maintain the criterion of success at 75%.
Demonstrate an understanding of the fundamentals of physical chemistry which involves equilibrium, kinetics, thermodynamics, and electrochemistry (**SLO6**).	70% of students enrolled in a CHEM 1412 will successfully demonstrate mastery of all tasks, as documented by final exam score.	Course final exam	Results showed that 72% of students successfully demonstrated an understanding of the fundamental physical chemistry which involves equilibrium, kinetics, thermodynamics, and electrochemistry as documented by final exam score.	Criterion of success met. While the minimum criterion of success was met, examination of lab worksheets and final exam scores and disaggregated course student learning outcomes for CTEC 2431 and CHEM 1412 indicated a need to provide stronger foundational math skills (**SLO2 and SLO6**). More specifically, faculty reported the need for more review of basic math skills typically covered in developmental

				math courses. Two sections of MATH 0407 were created to support the Statistics and Industrial Mathematics Pathways Initiative. Based upon curriculum alignment discussions and industry advisor feedback, program requirements changed to include Industrial Mathematics. Counseling staff worked with the Division Chair of Office Administration and Computer Technology to advise students into the Industrial Mathematics Pathway. Criterion of success for program student learning outcome mastery will remain the same.
Explain how instruments function and how they are used to control plants (**SLO7**).	70% of students enrolled in a PTAC 1432 will successfully demonstrate mastery of all tasks, as documented by lab worksheets.	Course lab worksheets	Results showed that 74% of students demonstrated good to outstanding subject knowledge of how instruments function and how they are used to control plants as	Criterion of success met. While the minimum criterion of success was met, examination of final exam scores and disaggregated course student learning outcomes for PTAC 1432 and PTAC 1302 indicated

			demonstrated by evaluation of lab worksheets by faculty.	a need to provide stronger troubleshooting skills to properly address this program learning outcome. Faculty collaborated to modify the curriculum of the program by building in more process upsets for students to resolve in both PTAC 1302 and PTAC 1432. Evaluation of lab worksheets for PTAC 1432 demonstrated an 8% increase in successfully mastering troubleshooting The criterion of success will be increased to 75%.
Describe the basic responsibilities and requirements of a process technician's job (**SLO8**).	75% of students enrolled in a PTAC 1302 will successfully demonstrate mastery of all tasks, as documented by the course final project.	Course final exam	Results showed that 75% of students successfully demonstrated an understanding of the basic responsibilities and requirements of a process technician's job as documented by faculty evaluations of student final projects.	Criterion of success met. While the minimum criterion of success was met, examination of final exam scores and disaggregated course student learning outcomes for PTAC 1432 and PTAC 1302 indicated a need to provide stronger troubleshooting skills to properly address this program learning outcome. Faculty

				collaborated to modify the curriculum of the program by building in more process upsets for students to resolve in both PTAC 1302 and PTAC 1432. Evaluation of the rubric used to evaluate the course final project for PTAC 1302 indicated that average troubleshooting scores decreased from 6 points to 5.5 points out of 10. The criterion of success will remain at 75%.

Part V- Summary and Analysis of Use of Data to Improve Program

Assessment of Program Student Learning Outcomes:

1. Examination of final exam scores and disaggregated course student learning outcomes for CHEM 1412 indicated a need to provide stronger foundational math skills, specifically in the area of logarithms to support demonstrating an understanding of the fundamentals of physical chemistry which involves equilibrium, kinetics, thermodynamics, and electrochemistry (SLO6). Faculty in Chemical Technology collaborated with the Division Chair of Mathematics and Life Sciences to participate in the development and implementation of the Statistics and Industrial Mathematics Pathways. The creation of the pathways would allow for more flexibility in meeting college-level mathematics requirements.
2. Examination of final exam scores and disaggregated course student learning outcomes for PTAC 1432 and PTAC 1302 indicated a need to provide stronger troubleshooting skills to properly address process upsets and ensure students could better explain how instruments function and how they are used to control plants (SLO7). Faculty collaborated to modify the curriculum of the program by building in more process upsets for students to solve in both PTAC 1302 and PTAC 1432.

Curriculum:

1. The following modifications to the program curriculum are currently under development.
    - In the fall of 2010 the Chemical Technology Alliance Committee proposed to add a technical math course to the process technology curriculum. The proposal was based on a need to provide a shorter pathway in the curriculum and the need for a course that is more directly applicable to the process technician than college algebra.

Assessment of Courses:

1. A program wide course assessment of learning outcomes was developed in 2007 and continues to be implemented for use in program review reporting and curriculum improvement.
2. As discussed in the 2007-2008 and 2009-2010 Chemical Technology Program Reviews, there was a need for more refined definition and assessment of individual course student learning outcomes. This process has been established and course student learning outcomes for every outcome and every student are now being collected.

Student Feedback:

1. Based upon the 2007-2008 program recommendation from students to devise an online graduate survey, a new online survey was developed. The survey was administered as part of the CHEM 2425 class.
2. Based upon data from the 2007-2008 and 2009-2010 Chemical Technology Program Reviews, students expressed an interest in business and industry training. Students feedback indicates satisfaction with the addition of Center for Business and Industry Training classes.

3. To meet and encourage student interest in the Process Technology program, students continue to recommend a stronger recruitment program at area high schools.

Advisory Committee Recommendations:

1. Advisory Council has positive feedback regarding the existing courses.
   - The Council is pleased with the results of the recruitment strategies developed by project team members Mike Huston – Chair, Heather Dodge, Doug Kubala, Bob Holcombe, Dixie Higgs, Brad Crim, Rich Raun, Susan Phillips, and Nancy Tootle.
   - The Advisory Council continues to advise the ongoing implementation of programs in the BASF Center for Process Technology and the new Byron and Sandra Sadler Health Professions Complex.

Other Recommendations:

1. In support of the strategic plan for the program, the following measures will continue to be of focus for the 2012/2013 academic year.
   - Continued recruitment of credentialed and experienced Chemical Technology faculty to ensure the quality of the program and increased student success rate.
   - More focused partnership with the Student Success Center.

Part VI- Evaluation of Mature Program Changes

Program Change Need	Program Change Description	Evaluation/Outcome Measures 2009-2010	Evaluation/Outcome Measures 2011-2012
Examination of final exam scores and disaggregated course student learning outcomes for CHEM 1412 indicated a need to provide stronger foundational math skills, specifically in the area of logarithms to support demonstrating an understanding of the fundamentals of physical chemistry which involves equilibrium, kinetics, thermodynamics, and electrochemistry (**SLO6**).	Faculty in Chemical Technology collaborated with the Division Chair of Mathematics and Life Sciences to participate in the development and implementation of the Statistics and Industrial Mathematics Pathways Initiative. The creation of the pathways would allow for more flexibility in meeting college-level mathematics requirements.	Two sections of MATH 0407 were created to support the Statistics and Industrial Mathematics Pathways Initiative. Based upon curriculum alignment discussions and industry advisor feedback, program requirements changed to include Industrial Mathematics. Counseling staff worked with the Division Chair of Process Technology and Physical Sciences to advise students into the Industrial Mathematics Pathway.	Examination of final exam scores and disaggregated student learning outcomes for CHEM 1412 showed that student learning of this outcome increased 12%. Additionally, the success rate of CHEM 1412 went up 3.5% in the Fall of 2011.
Examination of final exam scores and	Faculty collaborated to	Evaluation of the rubric used to evaluate the course	Evaluation of the rubric used to

disaggregated course student learning outcomes for PTAC 1432 and PTAC 1302 indicated a need to provide stronger troubleshooting skills to properly address process upsets and ensure students could better explain how instruments function and how they are used to control plants (SLO7).	modify the curriculum of the program by building in more process upsets for students to resolve in both PTAC 1302 and PTAC 1432.	final project for PTAC 1302 indicated that average troubleshooting scores increased from 4.5 points to 6 points out of 10. Evaluation of lab worksheets for PTAC 1432 demonstrated a 12% increase in successfully mastering troubleshooting.	evaluate the course final project for PTAC 1302 indicated that average troubleshooting scores decreased from 6 points to 5.5 points out of 10. Evaluation of lab worksheets for PTAC 1432 demonstrated an 8% increase in successfully mastering troubleshooting. While the PTAC scores decreased some, they are still above the initial 4.5 average score. Additionally, industry partners reported stronger troubleshooting skills from new graduates.
To examine the decrease in the number of 2-year AAS in Chemical Technology awards, feedback sessions of students enrolled in PTAC 2420 (Process Technology II) were conducted in Fall 2008 and Spring 2009. Data from feedback sessions indicated that students are less likely to complete the AAS in Chemical Technology due to increased opportunities for employment prior to completion of degrees.	A proposal was made to the BCPC Council that all petro-chemical companies adhere to the two year degree	Between 2006-07 and 2009-10, the graduation rate increased 11%	Between 2006-07 and 2011-12, the graduation rate increased 11%; However no increase has been seen since 2008. The Council advises developing a more formal recommendation to adhere to the two-year degree requirement.
Based upon a request from the South Texas Nuclear Plant for more	The program developed a Nuclear Power	As of Summer 2010, 6 students are enrolled in the program.	As of Summer 2012, 34 students were enrolled in the

nuclear workers in the workforce pipeline, there is a need for a new degree program that serves this industry need.	Specialty with Enhanced Skills Certification.		program. Eight students have completed the AAS and 11 have completed the advanced certificate.
Lack of information regarding program due to poor response rate of graduate program survey	Development of online graduate survey and implementation in CHEM 2425.	Graduate response rates increased 60% to 64%.	Graduate response rates increased 64% to 72%. Students recommend that the survey should be administered in multiple classes that are near the end of the program.
Higher than average course failure rate between 2006-2008	Development and implementation of individual student learning outcomes database, including professional development training on the creation of student learning outcomes and measurement of student learning outcomes	There was an overall, and consistent, decrease in the failure rate (-5%) and withdrawal rate (-13%) since the yearly program review period in 2006-2007	There was an increase in failure rates during this program period. Course success rates increased until the last academic year. This was examined in a faculty feedback session. Feedback from sessions indicated that this was reflective of an increased focus on defined course learning outcomes and their measurement and an increase in the number of dual/concurrent students and decreased preparedness for college.
Higher than average course failure rate between 2006-2008	Requirement of successful completion of Learning Frameworks (student success course)	There was an overall, and consistent, decrease in the failure rate (-5%) and withdrawal rate (-13%) since the yearly program review period in 2006-2007	There was an increase in failure rates during this program period. Course success rates increased until the last academic year. This was examined in a faculty feedback

			session. Feedback from sessions indicated that this was reflective of an increased focus on defined course learning outcomes and their measurement and an increase in the number of dual/concurrent students and decreased preparedness for college.
Program enrollment among dual/concurrent students not reaching established target. Advisory council recommended that a project team be formed to develop a recruitment strategy.	A recruitment strategy team was developed. The project team members are: Mike Huston – Chair, Heather Dodge, Doug Kubala, Bob Holcombe, Dixie Higgs, Brad Crim, Susan Phillips, and Nancy Tootle.	Between 2009/2010 and 2010/2011 school years there was a 55% increase in dual credit enrollment in the targeted programs.	In the last year, activities included: 1) Industry tours for 117 area high school science teachers and counselors, 2) Presentations by industry representatives to over 2,000 sophomores in the five area high schools each year, and 3) Industry tours for over 30 high school students each year. Between 2010/2011 and 2011/2012 school years there was a 28% increase in dual credit enrollment.
Based upon data from the 2007-2008 Chemical Technology Program Review, students expressed an interest in business and industry training. Students underscored this desire in the current evaluation of student feedback.	Specialized training through the Brazosport College Center for Business and Industry Training has been developed.	In the last program year (2009-2010) customized training to meet this demand has been offered to over 2,000 new Dow Chemical employees. A survey to Dow Chemical showed that 94% of supervisors stated that students showed good to outstanding subject knowledge of mastery	In the last program year (2011-2012) customized training to meet this demand has been offered to over 3,400 new Dow Chemical employees. A survey to Dow Chemical showed that 92% of supervisors stated that students showed

		learning outcomes, 95% of trainees had good to outstanding relations with co-workers, and 92% had a good to outstanding attitude towards work.	good to outstanding subject knowledge of mastery learning outcomes, 94% of trainees had good to outstanding relations with co-workers, and 96% had a good to outstanding attitude towards work.
Lower than average course success rate between 2006-09	Expansion of Brazosport College tutoring program with hiring of tutors for Chemical Technology Program	Course success rates between 2006-07 and 2009-10 have increased 1%. There was an overall, and consistent, decrease in the failure rate (-5%) and withdrawal rate (-13%) since the yearly program review period in 2006-2007	Overall Fall to Spring retention rates increased by 16%.

PROGRAM SUCCESS INDICATORS FORM (PSI)

Program/Department: **CHEMICAL TECHNOLOGY**

Program Enrollment

	2008/09	2009/10	2010/11	2011/12	Change '08 to '12
1. No. of Discipline Sections	73	60	102	104	33
2. Duplicated Headcount	856	791	1176	1399	63
3. Discipline Specific Contact Hrs	72304	65008	90464	112528	56
4. % Sections w/ FT Faculty	87%	100%	87%	100%	15%
5. Course Success Rate	86%	82	83%	75%	-13%
6. Course Failure Rate	14%	18	17%	25%	79%
7. Course Withdrawal Rate	6%	7	5%	4%	-33%
8. No. of Awards	18	30	26	31	72%
9. No. of Graduates	18	30	25	31	72%
10. % Successful Outcomes	86.8%	88.0%	NA	NA	1.3% (from 09-09)

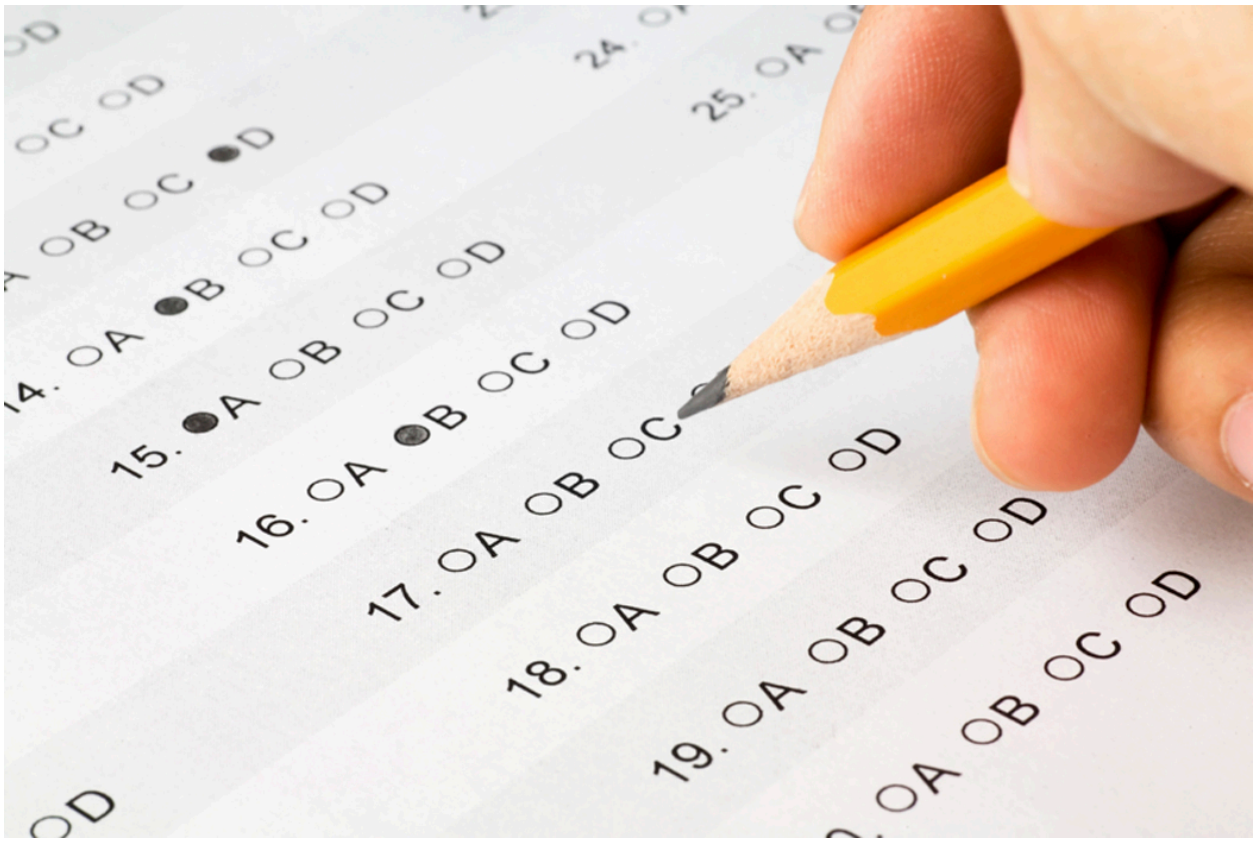
Notes:

Program Demographics

	White	Black	Hispanic	Asian	Other	Unknown
12. Ethnicity	53.4%	8.9%	32.7%	3.5%	0.6%	.9%
	>20	**20-24**	**26-35**	**36-45**	**46-55**	**56+**
13. Age	45%	19.5%	26.7%	5.8%	1.5%	1.5%
	Male	**Female**				
14 Gender	83.1%	16.9%				

Notes:

BRAZOSPORT COLLEGE
2011 PROGRAM REVIEW



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Brazosport College – 2011 Program Review Summary

Overview/Purpose: Program review is the systematic and ongoing process of assessing the quality of Brazosport College's academic programs. Two fundamental goals guide the process of program review: 1) to assure that Brazosport College faculty and administration provide high quality undergraduate academic programs, and 2) to identify opportunities for program improvement.

Each program section contains a Basic Program Review (BPR) form, which can include one or more pages of referenced information, and one or more Performance Success Indicator (PSI) sheets, which provide data summaries for the respective program components. This Program Review Summary reflects data from the 2011/12 reporting year. Each BPR form is designed to discuss factors of program productivity, viability, and quality, to provide a brief description of data utilization for assessment/review purposes, and to summarize any recommendations received by advisory committees and/or other audiences.

Each PSI form shows data for a maximum of five reporting years. To remain consistent with the state's reporting requirements and data publication practices, every reporting year starts with the fall term and ends with the summer term.

The table below provides a more detailed explanation of the first set of fields of the PSI.

1. No. of Discipline Sections	Discipline-specific sections of the required program courses offered
2. Duplicated Headcount	Total of course seats taken by program enrollees during the period
3. Discipline Specific Contact Hours	Contact hours of program enrollees across discipline courses
4. % Sections w/ FT Faculty	Percentage of sections (1.) taught by FT Faculty
5. Course Success Rate	Total pass rate (A-D) for program courses
6. Course Failure Rate	Total F percentage for program courses
7. Course Withdrawal Rate	Total W percentage for program courses
8. No. of Awards	Number of awards granted by the program (certificates & degrees)
9. No. of Graduates	Number of degrees granted during the period
10. % Successful Outcomes	Percentage of completers employed or continuing education

BASIC PROGRAM REVIEW FORM (BPR)

Program:	Computer Technology (AAS)
Program Director:	Ron Bonnette
Review Period:	Fall 2011 – Summer 2012
Date of Last Review:	October 2010
Review Participants:	Tom Fowler-Program Director, William Fenn, Wesley Scruggs, David Hinds, Sue Lannen – Computer Technology faculty, Advisory Committee
Academic Dean:	Dr. Lynda Villanueva
Description of the Review Process:	Determination of outcomes to be assessed for the program academic year. Review of performance indicators such as enrollments, number of awards, graduate and employer surveys, feedback from advisory committee. Development of a prescriptive plan based upon the program assessment results. Monitor impact of prescriptive plan and adjust as needed based on results. Incorporate and use results as part of the College's long range strategic and budgetary plan.

Part I: Program Productivity

Program Enrollment

	2008-09	2009-10	2010-11	2011-12	Change '08 to '12
1. No. of Discipline Sections	32	38	36	46	44%
2. Duplicated Headcount	283	349	379	429	52%
3. Discipline Specific Contact Hrs	21168	25632	28016	33776	60%
8. No. of Awards	6	11	7	16	167%
9. No. of Graduates	6	8	5	11	83%
10. % Successful Outcomes	71.8%	64.0%	NA	NA	-11%

Overview and Analysis of Findings:

- As evidenced by the increase in discipline sections, duplicated headcount, and contact hours, course enrollment has increased since the last program review.

- Awards (degrees and certificates) have increased 167% between the 2008-09 and the 2011-12 periods. The minimum program goal of at least 15 awards every three years has been achieved.

- The percentage of successful outcomes decreased 11% between the 2008-09 and the 2011-12 periods. Additionally, the number of students employed or in continuing education has not met the state's requirement of 85% during the review period.

Part II: Program Viability

The Computer Technology Program prepares students for occupations in Information Systems and Network.

Workforce Demand:

- Projected growth for the primary SOC code 15-1151.00 (Computer User Support Specialist), nationally and in Texas, is increasing. According to the Bureau of Labor Statistics, the projected national growth between 2010-2020 is classified as "average," representing a 10% to 19% increase. The number of job openings for this same period is 269,500 nationally.

- In Texas, the projected growth between 2010-2018 for the primary SOC code 15-1151.00 (Computer User Support Specialist) is 52,450, a 15% increase. Average salary range for the occupational field is between $29,400 and $85,800 per year.

- Enrollment numbers are consistent with the projected number of openings per year. The number of projected openings per year is 1,940 for Computer User Support Specialist positions.

- Prospective employers continue to be in contact with the department for recommended potential employees.

Part III: Program Quality

Faculty:

	2008-09	**2009-10**	**2010-11**	**2011-12**	**Change '08 to '12**
4. % Sections w/ FT Faculty	91%	82%	86%	78%	-14%

- The program currently employs 6 full time faculty and 7 adjunct faculty. All faculty members possess a minimum of an Associate's degree in Computer Technology and more than 3 years of work experience in the field.

- During 2008-09 and the 2011-12 periods, there was a 14% decrease in the course sections taught by full-time faculty.

Pass and Withdrawal Rates:

	2008-09	2009-10	2010-11	2011-12	Change '08 to '12
5. Course Success Rate	70%	72%	69%	67%	-4%
6. Course Failure Rate	30%	28%	31%	33%	10%
7. Course Withdrawal Rate	22%	18%	18%	18%	-18%

- Based on the percentage of sections taught by full-time faculty, it was expected that the failure rate and withdrawal rate would be lower. As seen above, this has not been the case. Course success rates have decreased. Additionally, failure rates have increased.

Student Feedback:

Student feedback regarding the instruction of courses continues to be positive. Feedback during the last two program reviews was inconsistent and survey responses were lower than the desired criterion (70%). During the last program year, this increased to 68%. This change is attributed to the switch from a mail-out graduate survey to an online graduate survey created in Survey Monkey.

Advisory Feedback:

Advisory Council has positive feedback regarding the existing courses. Suggestions have included: 1) the development of more strategies to increase success in math requirements, 2) the completion of the development of a strategic enrollment management plan for increased enrollment, and 3) the continued implementation of strategies to increase program course success rates, and 4) add more cooperative education experience.

Part IV: Student Learning/Program Outcomes

Process of Identifying Outcomes: Most outcomes were derived from the collaboration of Computer Technology faculty with the advisory council. However, faculty engage in regular meetings to make sure that outcomes are being addressed and assessed in all classes.

The faculty in the Computer Technology program have developed a curriculum matrix showing the specific courses and sequences of courses in which students are presented with disciplinary content material and the opportunities to build appropriate skills. These matrices, constructed by the disciplinary faculty, link individual courses to the programmatic student learning outcomes, thereby ensuring that each program's curriculum provides adequate opportunity for its students to master the outcomes of that degree. Every course syllabus at Brazosport College includes course student learning outcomes and program student learning outcomes for the course. This careful connecting of course, program, and institution wide core curriculum student learning outcomes allows for exploration and aggregation of assessment results at multiple levels of analysis, which supports sound interpretation of and response to assessment results.

The table below shows a curriculum matrix from the required primary components of the AAS in Computer Technology. This matrix shows how the primary courses in the degree addresses programmatic learning outcomes.

Table 1: Matrix of Core Computer Technology Program Student Learning Outcomes and Courses

	At the completion of the Computer Technology Program, students will be able to describe and apply trouble-shooting techniques and strategies to solve a wide range of computer hardware, software and networking problems (**SLO1**).	At the completion of the Computer Technology Program, students will be able to create technical reports and documentation through researching and interpreting a variety of industry sources (**SLO2**).	At the completion of the Computer Technology Program, students will be able to operate both independently and as a team member on information technology projects (**SLO3**)	At the completion of the Computer Technology Program, students will be able to identify and analyze system, network and security requirements for various organizations (**SLO4**).	At the completion of the Computer Technology Program, students will be able to apply problem-solving concepts and quantitative analysis to the study of a wide variety of technology problems (**SLO5**).
CPMT 1411	Primary Focus	Moderate	Low/Minimal	Low/Minimal	Medium
ITSC 2380	Moderate	Primary Focus	Primary Focus	Low/Minimal	Low/Minimal
CETT 1325	Low/Minimal	Moderate	Low/Minimal	Primary Focus	Medium
ITSC 2339	Low/Minimal	Moderate	Moderate	Medium	Primary Focus

PROGRAM STUDENT LEARNING OUTCOME	CRITERIA FOR SUCCESS	MEANS OF ASSESSMENT	SUMMARY OF DATA COLLECTED	USE OF RESULT
At the completion of the Computer Technology Program, students will be able to describe and apply trouble-shooting techniques and strategies to solve a wide range of computer hardware, software and networking problems (**SLO1**).	70% of students enrolled in CPMT 1411 (Computer Maintenance) will successfully demonstrate mastery of all tasks as documented by the cumulative course final.	Cumulative course final	Results showed that 71% students demonstrated mastery of trouble-shooting techniques and strategies to solve a wide range of computer hardware, software and networking problems as documented by the cumulative course final.	The minimum criterion of success was met. An examination of final project and final exam scores and disaggregated course student learning outcomes for ITSC 2339 and CPMT 1411 indicates stronger foundational mathematical skills. Two sections of MATH 0407 were created to support the Statistics and Industrial Mathematics Pathways Initiative. Based upon curriculum alignment discussions and industry advisor feedback, program requirements changed to include Industrial Mathematics. Counseling staff worked with the Division Chair of Office Administration and Computer Technology to advise students into the Industrial Mathematics Pathway. Criterion of success for program

				student learning outcome mastery will be increased to 75%.
At the completion of the Computer Technology Program, students will be able to create technical reports and documentation through researching and interpreting a variety of industry sources (**SLO2**).	75% of students enrolled in ITSC 2380 (Cooperative Education I-Computer and Information Systems) will successfully demonstrate mastery of all tasks as documented by lab worksheets evaluated by faculty.	Lab worksheets	Results showed that 71% students of demonstrated mastery of the ability to create technical reports and documentation through researching and interpreting a variety of industry sources as documented by lab worksheets evaluated by faculty.	The benchmark was not met. Two part-time writing tutors were hired that successfully completed ITSC 2380. As part of training, the tutors worked with Computer Technology faculty to develop a process for reviewing and assisting students in the development of writing skills for technical reports. All students in the course were required to meet at least once with the writing tutors. Results indicated that average technical writing scores on lab worksheets scores increased from 13 points to 15 points out of 25. This program change will continue to be monitored. Criterion of success for program student learning outcome mastery will remain the same.
At the completion of the Computer Technology	70% of students enrolled in ITSC 2380	Cumulative course final	Results showed that 73% of students	The minimum criterion of success was met.

Program, students will be able to operate both independently and as a team member on information technology projects (**SLO3**).	(Cooperative Education I-Computer and Information Systems) will successfully demonstrate mastery of all tasks as documented by the cumulative course final.		demonstrated mastery of the ability to operate both independently and as a team member on information technology projects as documented by the cumulative course final.	Criterion of success for program student learning outcome mastery will be increased to 75%.
At the completion of the Computer Technology Program, students will be able to identify and analyze system, network and security requirements for various organizations (**SLO4**).	70% of students enrolled in CETT 1325 (Digital Fundamentals) will successfully demonstrate mastery of all tasks as documented by the cumulative course final.	Cumulative course final	Results showed that 75% of students demonstrated mastery of the ability to identify and analyze system, network and security requirements for various organizations as documented by the cumulative course final.	In the prior program review cycle, examination of final exam scores and disaggregated course student learning outcomes for CETT 1325 indicated that students were having difficulty in identifying and solving network problems across all types of organizations, specifically in security systems for medical organizations. Baseline performance on the new course activity was 82%. Additionally, final exam scores correlated to student learning outcomes for solving network problems in medical organizations for

				CETT 1325 indicated that 68% of students demonstrated mastery of this learning outcome as opposed to 57% during the prior year. The minimum criterion of success was met. Criterion of success for program student learning outcome mastery will be increased to 75%.
At the completion of the Computer Technology Program, students will be able to apply problem-solving concepts and quantitative analysis to the study of a wide variety of technology problems (**SLO5**).	70% of students enrolled in ITSC 2339 (Personal Computer Help Desk) will successfully demonstrate mastery of all tasks as documented by the course final project.	Course Final Project	Results showed that 73% of students demonstrated mastery of the ability to apply problem-solving concepts and quantitative analysis to the study of a wide variety of technology problems as documented by the course final project.	The minimum criterion of success was met. An examination of final project and final exam scores and disaggregated course student learning outcomes for ITSC 2339 and CPMT 1411 indicates stronger foundational mathematical skills. Two sections of MATH 0407 were created to support the Statistics and Industrial Mathematics Pathways Initiative. Based upon curriculum alignment discussions and industry advisor feedback, program requirements changed to include Industrial

				Mathematics. Counseling staff worked with the Division Chair of Office Administration and Computer Technology to advise students into the Industrial Mathematics Pathway. Criterion of success for program student learning outcome mastery will be increased to 75%.

Part V- Summary and Analysis of Use of Data to Improve Program

Assessment of Program Student Learning Outcomes:

1. Examination of lab worksheets and disaggregated course student learning outcomes for ITSC 2380 indicated a need to support students with writing services that would improve their ability to create stronger technical reports (**SLO2**). Faculty in Computer Technology collaborated with the Director of Transitional Education to implement required writing tutor sessions and the provision of a tutor who successfully completed ITSC 2380 to work specifically with students in creating stronger technical reports.
2. Examination of final project and final exam scores and disaggregated course student learning outcomes for ITSC 2339 and CPMT 1411 indicated a need to provide stronger foundational math skills (**SLO1 and SLO5**). More specifically, faculty reported the need for more review of basic math skills typically covered in developmental math courses. Additionally, faculty reported that foundational skills were not in strong alignment with the required college level mathematics course, College Algebra (MATH 1314). Faculty in Computer Technology collaborated with the Division Chair of Mathematics and Life Sciences to participate in the development and implementation of the Statistics and Industrial Mathematics Pathways. The creation of the pathways would allow for more flexibility in meeting college-level mathematics requirements.
3. Examination of final exam scores and disaggregated course student learning outcomes for CETT 1325 indicated that students were having difficulty in identifying and solving network problems across all types of organizations, specifically in security systems for medical organizations (**SLO4**). It was determined that Computer Technology faculty would discuss probable solutions with the Computer Technology advisory group.
4. Examination of final exam scores and disaggregated course student learning outcomes for CPMT 1411 indicated that too few students were meeting the requirements needed to properly troubleshoot, particularly the need to observe the effects of diagnostic changes and documenting changes while troubleshooting (**SLO1**). Faculty collaborated to modify the curriculum of the program by enhancing the curriculum with two active learning activities to enhance this program student learning outcome in CPMT 1411.

Curriculum:

1. The following modifications to the program curriculum are currently under development.
    a. ITSE 1407 – Introduction to C++ Programming was changed to COSC 1420 – Introduction to C++ Programming. ITSE 2331 – Advanced C++ Programming was changed to COSC 2320 – Advanced C++ Programming.
    b. IMED 2315 – Web Design II was replaced with ITSY 1300 – Fundamentals of Information Security
2. ITNW 1351 – Fundamentals of Wireless LANs was removed from the Network Support specialty. Due to the demand in wireless technology, it has become an integral part of networking. Facets of it are taught in many of our network courses eliminating the need for a separate course. The CT&OA Advisory Committee suggested that we replace the course with a cooperative education experience. Based on this recommendation, we

added ITSC 2380 – Cooperative Education I – Computer and Information Sciences, General to this part of the program.

Assessment of Courses:

1. A program wide course assessment of learning outcomes was developed in 2007 and continues to be evaluated.
   The use of disaggregated data on the basis of individual course student learning outcomes has been used to understand achievement gaps in the Computer Technology program.

Student Feedback:

1. Provide additional support systems and different options for completing college-level mathematics courses.

Advisory Committee Recommendations:

1. Advisory Council has positive feedback regarding the existing courses. Suggestions have included: 1) the development of more strategies to increase success in math requirements, 2) the completion of the development of a strategic enrollment management plan for increased enrollment, and 3) the continued implementation of strategies to increase program course success rates, and 4) add more cooperative education experience.

Other Recommendations:

1. In support of the strategic plan for the program, the following measures will continue to be of focus for the 2012/2013 academic year:
   - Increase sections of courses taught by full-time faculty.
   - Develop stronger partnership with the Student Success Center.
   - Continue implementation of the Mathematics Pathways.

Part VI- Evaluation of Mature Program Changes

Program Change Need	Program Change Description	Evaluation/Outcome Measures 2009-2010	Evaluation/Outcome Measures 2011-2012
Examination of lab worksheets and disaggregated course student learning outcomes for ITSC 2380 indicated a need to support students with writing services that would improve their ability	Faculty in Computer Technology collaborated with the Director of Transitional Education to implement required writing tutor sessions and	Two part-time writing tutors were hired that successfully completed ITSC 2380. As part of training, the tutors worked with Computer Technology faculty to develop a process for reviewing and assisting students in the	All students in the course continued to be required to meet at least once with the writing tutors. Results indicated that average technical writing scores on lab worksheets scores increased from 15

to create stronger technical reports (**SLO2**).	the provision of a tutor who successfully completed ITSC 2380 to work specifically with students in creating stronger technical reports.	development of writing skills for technical reports. All students in the course were required to meet at least once with the writing tutors. Results indicated that average technical writing scores on lab worksheets scores increased from 13 points to 15 points out of 25.	points to 17.5 points out of 25.
Examination of final project and final exam scores and disaggregated course student learning outcomes for ITSC 2339 and CPMT 1411 indicated a need to provide stronger foundational math skills (**SLO1** and **SLO5**). More specifically, faculty reported the need for more review of basic math skills typically covered in developmental math courses. Additionally, faculty reported that foundational skills were not in strong alignment with the required college level mathematics course, College Algebra (MATH 1314).	Faculty in Computer Technology collaborated with the Division Chair of Mathematics and Life Sciences to participate in the development and implementation of the Statistics and Industrial Mathematics Pathways. The creation of the pathways would allow for more flexibility in meeting college-level mathematics requirements.	Two sections of MATH 0407 were created to support the Statistics and Industrial Mathematics Pathways Initiative. Based upon curriculum alignment discussions and industry advisor feedback, program requirements changed to include Industrial Mathematics. Counseling staff worked with the Division Chair of Office Administration and Computer Technology to advise students into the Industrial Mathematics Pathway.	Examination of final project and exam scores and disaggregated student learning outcomes for ITSC 2339 and CPMT 1411 showed that students were demonstrating stronger foundational mathematical skills. Faculty reported less need for review of basic math skills.
Examination of final exam scores and disaggregated course student learning outcomes for CETT 1325 indicated that students were having	It was determined that Computer Technology faculty would discuss probable solutions with the Computer Technology	Baseline performance on the new course activity was 82%. Additionally, final exam scores correlated to student learning outcomes for solving network problems	Performance on the implemented course activity was 85.5%. Additionally, final exam scores correlated to student learning outcomes for

difficulty in identifying and solving network problems across all types of organizations, specifically in security systems for medical organizations (**SLO4**).	advisory group. A new course project was developed that specifically addressed the networking and security problems related to medical organizations.	in medical organizations for CETT 1325 indicated that 68% of students demonstrated mastery of this learning outcome as opposed to 57% during the prior year.	solving network problems in medical organizations for CETT 1325 indicated that 74% of students demonstrated mastery of this learning outcome as opposed to 68% during the prior year.
Lack of information regarding program due to poor response rate of graduate program survey	Development of online graduate survey	Graduate response rates increased from 26% to 47%.	Graduate response rates increased from 47% to 68%.
Student and faculty feedback indicates difficulty with math skills in first and second term Computer Technology classes.	Increased tutoring tied to program.	The development of this strategy has led to a 4% increase in course success rates for Computer Technology students between the 2008-09 and the 2011-12 periods.	The development of this strategy has led to an 18% decrease in withdrawal rates for Computer Technology students between the 2008-09 and the 2011-12 periods
Faculty reports of student unpreparedness on the rise.	Implementation of Learning Frameworks course for all first-time-in-college degree-seeking students.	The development of this strategy has led to a 30% increase in Fall-to-Spring first-time-in-college students and a 28% increase in Fall-to-Fall retention for the same population of students.	In the 2011-12 Academic Year, the Fall-to-Spring rate was 18% above the 2009-10 Academic Year.
Faculty desired to have more detailed information regarding the attainment of student learning outcomes.	Development and implementation of individual student learning outcomes database, including professional development training on the creation of student learning outcomes and measurement of student learning outcomes.	Feedback sessions of faculty indicate that there is a stronger perception that evaluation of student learning outcomes has been enhanced. This strategy will continue to be evaluated.	Withdrawal rates decreased by 18%. Faculty in feedback sessions report better scoring based upon development of refined student learning outcomes and use of rubrics.

Increased focus on student success desired as a part of College's Achieving the Dream efforts and poor overall College graduation rate.	Expansion of Brazosport College tutoring program with hiring of tutors for program.	Feedback collected through TutorTrac indicated that 95% of students from the Computer Technology program who received math tutoring were satisfied or very satisfied with the tutoring they received.	Withdrawal rates decreased by 20%. Awards have increased by 167% for this program.

PROGRAM SUCCESS INDICATORS FORM (PSI)

Program/Department: **COMPUTER TECHNOLOGY**

Program Enrollment

	2008-09	2009-10	2010-11	2011-12	Change '08 to '12
1. No. of Discipline Sections	32	38	36	46	44%
2. Duplicated Headcount	283	349	379	429	52%
3. Discipline Specific Contact Hrs	21168	25632	28016	33776	60%
4. % Sections w/ FT Faculty	91%	82%	86%	78%	-14%
5. Course Success Rate	70%	72%	69%	67%	-4%
6. Course Failure Rate	30%	28%	31%	33%	10%
7. Course Withdrawal Rate	22%	18%	18%	18%	-18%
8. No. of Awards	6	11	7	16	167%
9. No. of Graduates	6	8	5	11	83%
10. % Successful Outcomes	71.8%	64.0%	NA	NA	-11%

Notes:

Program Demographics

	White	Black	Hispanic	Asian	Other	Unknown
12. Ethnicity	62.0%	2.7%	34.2%	0.5%	0.0%	0.5%
	>21	**22-25**	**26-35**	**36-45**	**46-55**	**56+**
13. Age	36.4%	26.7%	23.0%	9.1%	3.7%	2.1%
	Male	**Female**				
14 Gender	67.4%	33.6%				

Notes: