

STUDENT LEARNING OUTCOMES

End of Year Report

2012-2013

Academic Assessment
February 5, 2014

Introduction

In support of Bluegrass Community and Technology College's (BCTC) mission to transform students by fostering excellence in teaching and learning, the technical programs strive to be responsive to community and workforce needs. Assessment of learning outcomes within each program illustrates the continuous improvement efforts leading to student success, while meeting the changing needs of the workforce and community.

All technical programs at BCTC offering a diploma or an associate degree develop annual assessment plans for at least three student learning outcomes at the program level. Each program identifies three learning outcomes to be evaluated. At least one direct method of measurement is identified to assess each outcome along with an expected target level of achievement. Once the outcomes are assessed, findings are reviewed, and strategies developed for improvement. Many of the strategies result in changes or modifications in curriculum, method of instruction, or delivery.

Meetings are held between the academic assessment coordinator and each program coordinator at least twice a year to discuss and evaluate the assessment plans. In addition, a newsletter, published each semester, provides assistance and helpful information for coordinators related to their assessment initiatives.

In 2012-2013, 38 programs assessed 116 program level student learning outcomes that focus primarily in the cognitive (knowledge, skills, and intellectual ability) and affective learning domains.

ALLIED HEALTH

Dental Assisting
Dental Hygiene
Dental Laboratory
Medical Assisting
Nuclear Medicine
Radiography
Respiratory Care
Surgical Technology

BUSINESS & EDUCATION

Business Mgmt. and Mktg.
Education
Health Information Techn.
Interdiscip. Early Child. Ed.
Medical Info. Technology
Office Systems Technology

COMM., HIST., LANG., & SOC. SCI.

Criminal Justice
Human Services

COMPUTER SCI. & INFO SYSTEMS

Computer Information Tech.
Information Mgmt. & Design

MANUFACTURING IND. TECH.

Electrical Technology
Engineering Technology
Industrial Maintenance
NATURAL SCIENCES
Biotechnology
Environmental Science Tech.

NURSING

Practical Nursing
Registered Nursing

TRADES AND TECHNOLOGIES

Air Conditioning Technology
Architectural Technology
Automotive Technology
Civil Engineering
Collision Repair
Comp. Aided Draft. & Design (2)
Comp. Manuf. & Machining
Construction Technology
Cosmetology
Equine Studies (NARA)
Fire Science Technology
Welding

This report briefly describes programs outcomes within each division by the end of year status, learning domains, and "next steps: or how the results are being used for improvements. The Concluding Remarks

includes reflection of the 2012-2013 assessment plans and recommendations of ways to improve the programs' assessment initiatives at BCTC.

Program Summaries

Allied Health Division

1. Dental Assisting

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 3 Not Assessed - 1	4 - Outcomes carried over

Of the four student learning outcomes identified and assessed, three rolled over from 2011-2012. A new outcome was also identified. Three outcomes assessed skill competencies related to students' ability to making alginate impressions, fabricate temporaries and bleaching trays. The fourth outcome assessed students' ability to effectively utilize software/technology for patient charting. Three outcomes met their target level of achievement and one was not assessed. Although three were met, faculty felt additional lab time/class time was needed to improve students confidence, ensure job readiness, and as a result of changes in ADA/CODA standards. All four outcomes will be assessed again in 2012-2013.

2. Dental Hygiene

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 3	2 - Outcomes carried over

All three student learning outcomes were assessed in 2011-2012. Two related to students' skills in their ability to know and perform timely patient procedures and to scale one quad. One outcome incorporated critical thinking and problem solving skills by demonstrating the students' ability to develop appropriate treatment plans for individual patients. All outcomes met their target level of achievement. Two are being assessed again in 2013-2014 with additional lab time, more hands on (more patients), and to determine the effectiveness of the additional treatment plan lecture that was implemented in 2012-2013. One new outcome related to the utilization of dental hygiene instruments is being assessed in 2013-2014.

3. Dental Laboratory Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 2 Partially Met - 1	3 - Outcomes carried over

The student learning outcomes were carried over from 2011-2012 for assessment in 2012-2013. They related to skill competencies; constructing a denture, fabricating dental prostheses and orthodontic appliances. The target levels of achievement were met on two of the outcomes and partially met on the third outcome. Based on the findings, strategies for improvement include more faculty input on individual dental prostheses projects and additional emphasis on weaknesses identified in fabricating orthodontic appliances. All three will be assessed again in 2013-2014.

4. Medical Assisting

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3- Outcomes carried over	Met – 1 Partially Met - 2	3 - Outcomes carried over

The three student learning outcomes from 2011-2012 were assessed again in 2012-2013. They were skill competencies related to administrative and clinical procedures; recognition and administration of medications, performance of clinical procedures and administrative skills. The outcome measuring administration of medications met its target level of achievement. Clinical procedures and administrative skill competencies were partially met. Faculty felt additional hands on experiences were needed for all three outcomes, especially for diagnostic tests in clinical procedures and administrative skills in electronic medical records. The outcomes will be assessed again in 2013-2014.

5. Nuclear Medicine

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 2 Partially Met - 1	1 - Outcomes carried over

All three 2011-2012 student learning outcomes were assessed again in 2012-2013. One of the outcomes related to skill competencies in performing QC procedures (with emphasis on math

concepts for QC data). Critical thinking and problem solving related to students' ability to adapt and explain procedures to patients were also assessed. The target levels of achievement were met on students' performance of QC procedures and explaining procedures to patients. The target level of achievement for students' ability to adapt procedures to meet patient needs was partially met. This outcome will be assessed again in 2013-2014. Faculty will provide additional scenarios and exercises requiring changes in routine imaging procedures. Two new outcomes will be identified and assessed in 2013-2014.

6. Radiography

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
2 - Outcomes carried over	Met - 3	1 - Outcomes carried over

One of the 2012-2013 learning outcomes related to critical thinking and problem solving associated with assessing patients' conditions and modifying procedures based on these assessments. The students' ability to critique and evaluate images and their ability to apply radiation safety procedures were also assessed. All three outcomes met their target levels of achievement. The students' ability to evaluate and critique images will be assessed again in 2013-2014 with increased availability and practice on the new PAS System. Two new outcomes will be identified for assessment in 2013-2014.

7. Respiratory Care

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
No outcomes were carried over.	Met - 1 Partially Met - 2 -	3 - Outcomes carried over

In 2011-2012 all three student learning outcomes were met. The CRT exam results showed students' success exceeded the national average and achievement targets on these initiatives. Based on CRT findings, three new were identified for assessment in 2012-2013. Two of the outcomes related to skill proficiency and one involved procedural recommendations based on pertinent clinical information. Two of the achievement targets were partially met. Strategies to improve students' success include incorporating case studies to improve bronchial hygiene protocols and the additional of a unit in the respiratory care seminar course to perform quality control procedures. All three will be assessed again in 2013-2014 with an additional outcome identified that relates to care of artificial airways.

8. Surgical Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 3	3 - Outcomes carried over

The 2011-2012 student learning outcomes were assessed again in 2012-2013. Two of the outcomes related to skill competencies; students ability to demonstrate safe non-sterile environment and their ability to gown, glove and set-up the back table. One outcome related to knowledge and the ability to identify surgical instruments. All three outcomes met their target level of achievement. Faculty have restructured labs and lectures on non-sterile environments and will assess this outcome again in 2013-2014. Additional hands on and lab time will be incorporated into gowning, gloving and the identification of surgical instruments. These two outcomes will be assessed again in 2013-2014.

Business and Education

1. Business Management and Marketing

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 1 Partially Met - 1 Not Assessed - 1	3- Outcomes carried over

The 2011-2012 student learning outcomes were assessed again in 2012-2013. They related to students' ability to demonstrate an understanding of financial instruments, promotion techniques, and functions of management. The end of year findings indicate one target level of achievement was met, one partially met, and one was not assessed. Strategies to improve students' success include: more clarity of the role of Fannie Mae in understanding financial instruments, additional practical experiences (e.g. field trips and guest lecturers) to improve promotion techniques, and increased opportunities to develop problem solving and decision making skills related to management functions. All three outcomes will be assessed again in 2013-2014.

2. Education

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
No outcomes carried over	Met - 3	1 - Outcomes carried over

The new program coordinator identified three new student learning outcomes in 2012-2013 that relate to the application of knowledge of special education processes and procedures, KY Core Standards, and the ability to implement strategies that promote learners independence. The 2012-2013 assessments indicated all three outcomes met their target level of achievement. With the inclusion of Next Generation Science Standards and new Social Studies and Geography Standards, students' ability to apply knowledge of KY Core Standards will be assessed again in 2013-2014. The identification of two new outcomes related specifically to the Associate in Applied Science competencies will be assessed in 2013-2014.

3. Health Information Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
2012-2013 First Year of Assessment Plans	Met - 2 Not Met - 1	No outcomes carried over

This was the first year of assessment for this new program. Two outcomes related to application of knowledge in evaluating healthcare data and incorporating strategies and resources for independent learning. The third outcome related to the application of critical thinking and problem solving associated with medical coding. Target levels of achievement were met for evaluating health care data and logical reasoning in medical coding. The ability to incorporate strategies and resources for independent reasoning was not met but faculty plan to assign individual projects to improve students' skills in this area. Additionally, more complicated scenarios will be implemented to improve students' medical coding applications. The interim program coordinator has worked with the assessment coordinator in identifying three specific outcomes for assessment in 2013-2014.

4. Interdisciplinary Early Childhood Education

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
1 - Outcomes carried over	Met – 2 Not Met - 1	3 - Outcomes carried over

The 2011-2012 outcome related to the students' ability to develop comprehensive lesson plans was assessed again in 2012-2013. Additional assistance was added to 200 level classes to improve the assessment component of the lesson plans. This outcome met its achievement target in 2012-2013 along with one of the new outcomes associated with effective classroom management skills. The new 2012-2013 outcome related to observation, documentation and assessment of progress of students and families did not meet its target level of achievement. All three outcomes will be assessed again in 2012-2013 with strategies in place to improve students' success on each one.

5. Medical Information Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 1 Partially Met - 1 Not Met - 1	1 - Outcomes carried over

The 2011-2012 student learning outcomes were assessed again in 2012-2013. Two related to skill competencies of preparing medical business documents and using CPT and ICD-CM coding systems. The remaining outcome focused on students' ability to greet patients professionally. This outcome met its achievement target with faculty expanding the curriculum to include individual employment searches and using a different approach to develop ethics skills. The target level for preparation of medical business documents was partially met. Faculty will incorporate additional proofreading and grammar activities along with weekly spelling assessments. The students did not meet the achievement target for coding systems. Faculty will incorporate test preparation classes to improve students' success. One outcome will be assessed again in 2013-2014 in addition to three new ones.

6. Office Systems Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 2 Partially Met - 1	3 - Outcomes carried over

The student learning outcomes from 2011-2012 were assessed again in 2012-2013. Two related to skill competencies and one related to critical thinking. The ability of students to format word documents and to search strategically and evaluate information met their achievement targets. Faculty, however, felt the need to implement more class time and hands on tasks for word documents. Additional tasks to reinforce search strategies will also be incorporated. The target level used to assess students' ability to create excel formulas was partially met. Faculty will spend more time reviewing the excel formulas to assist students in meeting this target level of achievement. All three will be assessed again in 2013-2014.

Communications, History, Languages, and Social Sciences

1. Criminal Justice

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
2 - Outcomes carried over	Met – 2 Not Met - 1	3 - Outcomes carried over

Two student learning outcomes from 2011-2012 were assessed again in 2012-2013. They related to awareness of ethical considerations in decision making and critical thinking in making connections across disciplines. A new outcome was identified assessing students' understanding of levels in the criminal justice system. Although the target levels of achievement were met on the outcomes carried over from 2011-2012, faculty felt the need to improve students' success on these outcomes. Strategies for improvement include reviewing step by step procedures in writing critical essays associated with ethical considerations and reinforcing terms and concepts in making connections across disciplines. To improve students understanding about the levels and interconnections within the criminal justice system, faculty will focus heavily on the interactions between the various areas. Additional strategies will include class discussions and review of material that was not retained. All three will be assessed again in 2013-2014.

2. Human Services

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 3	1 - Outcomes carried over

The 2011-2012 student learning outcomes were assessed again in 2012-2013. Two of the outcomes related to understanding group processes including multi-cultural environment and values of various ethnic and cultural groups. The third outcome related to the students' ability to establish helping relationships. Achievement target levels were met on all three outcomes. One will be reassessed in 2013-2014 with faculty clearly identifying students that do not understand the role of value judgments in Human Services professions. Two new outcomes related to development and understanding relationships will be assessed in 2013-2014.

Computer Sciences and Information Systems

1. Computer Information Technologies

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met – 2 Not Met - 1	3 - Outcomes carried over

The student learning outcomes from 2011-2012 carried over for assessment in 2012-2013. One related to designing and creating a capstone system, one targeted team-building and communication skills and one focused on critical thinking and problem solving for an entire system. All outcomes met their target level of achievement with the exception of planning an entire capstone system which will be assessed again in 2013-2014. Strategies for improvement include improving student involvement of various components of a system and developing communication, teamwork and critical thinking skills in pre-requisite courses.

2. Information Management and Design

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 3	3 - Outcomes carried over

The 2011-2012 student learning outcomes were assessed again in 2012-2013. They related to designing and creating web pages, publications, and professional portfolios. All three met their target level of achievement and will be assessed again in 2013-2014. Strategies for improving student success included adding software, using social media for course materials, and providing examples of previous students completed works for current students to critique.

Manufacturing Industrial Technology

1. Electrical Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
2 - Outcomes carried over	Met - 3	2 - Outcomes carried over

Two 2011-2012 outcomes were assessed again in 2012-2013; wiring a workshop and performing code calculations. Students' ability to convert relay logic to ladder logic and program PLCs was identified as a new outcome for assessment in 2012-2013. All three outcomes met their target level of achievement. The ability to wire a workshop is one of two being assessed again in 2013-2014 with additional time and emphasis on ways to avoid mistakes. Additional time and practice will be provided in advanced level programming to increase students' success in converting relay logic and programming PLCs. One new outcome related to solar systems will be assessed in 2013-2014.

2. Engineering Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
2 - Outcomes carried over	Met - 3	1 - Outcomes carried over

Two student learning outcomes from 2011-2012 were assessed again in 2012-2013. They related to demonstrating designing and constructing simple circuits and calculating, constructing and plotting RL and RC series circuits and phase shift circuits. The ability to understand, design, and describe multi-stage circuits was a new outcome assessed in 2012-2013. All three outcomes met their target level of achievement. The outcome related to constructing simple circuits will be assessed again in 2013-2014 with additional time allotted for demonstrations and use of software. Two new outcomes will be identified in 2013-2014.

3. Industrial Maintenance

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
2 - Outcomes carried over	Met - 1 Partially Met - 1 Not Assessed - 1	3 - Outcomes carried over

Two outcomes assessed in 2011-2012 were assessed again in 2012-2013. They related to alignment on mechanical drive components and installing, maintaining, and troubleshooting fluid power systems. Students' ability to measure and troubleshoot three phase power circuits was identified as a new outcome for assessment in 2012-2013. One outcome was met, one partially met, and one was not assessed. Strategies for improvements include: review and emphasis on basic multi-motor use in all courses, bringing equipment related to the mechanical drive outcome online, and additional time for designing and building the fluid power system (with emphasis on basic design). All three outcomes will be assessed again in 2013-2014.

Natural Sciences

1. Biotechnology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 1 Partially Met - 2	2 - Outcomes carried over

All of the 2011-2012 student learning outcomes were assessed again in 2012-2013. They identified students' ability to perform experiments utilizing lab notebooks for documenting raw data; data analysis with documentation and communication of findings; and preparation and maintaining biological and chemical materials. The target level of achievement was met for performing experiments and utilizing lab notebooks. The remaining two outcomes were partially met and will be assessed again in 2013-14 with strategies that include providing students with samples to evaluate along with specific written instructions. One new outcome related to students' ability to following Standard Operating Procedures will be assessed in 2013-2014.

2. Environmental Science Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 3	3 - Outcomes carried over

The 2011-2012 student learning outcomes were assessed again in 2012-2013. The outcomes related to keeping a field log, demonstrating information literacy, and processing and manipulating scientific data. All outcomes met their target levels of achievement. Strategies for improvement include: earlier feedback on field logs, improved teaching methods, using a rubric to identify students needing additional assistance with information literacy, and developing an excel tutorial to process data in spreadsheets and graphs. All three outcomes will be assessed in 2013-2014.

Nursing

1. Practical Nursing

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 3	3 - Outcomes carried over

Three student learning outcomes from 2011-2012 were assessed again in 2012-2013. The outcomes related to designing a plan of care, making clinical judgments and safe administration of medications. All three met their target level of achievement. The outcomes are being assessed again in 2013-2014. Strategies to improve students' success include: incorporating care planning throughout the program, integrating theory with clinicals, including "evidence based practice" concepts to aid in making clinical judgments, continuing to emphasize safe medication administration in classrooms, and constant monitoring for quick intervention in medical administration. In addition, a fourth outcome is being assessed in 2013-2014 that relates to professional attitudes and behaviors.

2. Registered Nursing

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
4 - Outcomes carried over	Met - 4	4 - Outcomes carried over

The 2011-2012 student learning outcomes were assessed again in 2012-2013. They included prioritization of patient care; synthesizing principles related to therapeutic communication; clinical competence in providing care, and critical thinking and analysis for logical thinking in drawing conclusions. All four outcomes met their target levels of achievement. Strategies for student improvement include: preceptor evaluations, addition of 60 second situational analysis, incorporation of concept maps, medication calculations on each exam, student evaluation of nursing performance on a specific procedure, and incorporation of I-SBAR communication techniques in all patient stimulations. All four outcomes will be assessed again in 2013-2014.

Trades and Technologies

1. Air Conditioning Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 1 Partially Met - 2	2 - Outcomes carried over

The 2011-2012 student learning outcomes were assessed again in 2012-2013. The outcomes related to servicing and installation of R410A Systems, servicing HVAC equipment (with emphasis on heat pump schematics), and heat load reduction calculations. Students met the target level of achievement in calculating heat load reduction and partially met the achievement target levels for the other two outcomes. Additionally, the program coordinator noted a problem with lack of participation/attendance resulting in poor success of several students. Strategies to improve students' success on the outcomes include: plans to increase motivation and participation of students, additional hands on work on calculations through classroom exercises and case scenarios. Two outcomes will be assessed again in 2013-2014 along with a new outcome associated with the students' ability to construct electric circuits.

2. Architectural Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
No outcomes were carried over.	Met - 3	3 - Outcomes carried over

Summary

Three new student learning outcomes were identified and assessed in 2012-2013. They included: analyzing architecture using aesthetic principles, applying historical concepts and theories, and producing construction documents. Target levels of achievement were met on all three outcomes. Strategies for improvement include: expansion of group activities, assigning study buddies, expanding peer learning and additional interactive activities. All three outcomes were carried over for assessment in 2013-2014.

3. Automotive Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
No outcomes were carried over.	Met - 1 Partially Met - 2	3 - Outcomes carried over

Three new student learning outcomes were identified for assessment in 2012-2013. All three outcomes were related to skill performances: measurements on engine components, valve adjustments, and vehicle alignment. The students met the target level of achievement for their ability to perform valve adjustments and partially met the target levels for the other two outcomes. Additional lab time was identified as a strategy for all three outcomes along with additional lab worksheets to be incorporated into measuring engine components and vehicle alignment. All three outcomes will be assessed again in 2013-2014.

4. Civil Engineering

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 3	2 - Outcomes carried over

The 2011-2012 student learning outcomes were assessed again in 2012-2013. Two of the outcomes related to students' knowledge in the areas of geography/topography and drainage. The third outcome related to interpretation of land survey data. The target levels of achievement were met on all three outcomes. It was noted, however, that only five students were assessed on the outcome demonstrating knowledge of drainage areas. Additional time and software is being incorporated into the program for land survey data. Enhanced focus on applied grading to facilitate drainage will be implemented to increase students' knowledge of drainage areas. These two outcomes will be assessed again in 2013-2014. A new outcome related to designing a highway will also be assessed in 2013-2014.

5. Collision Repair

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
1 - Outcomes carried over	Met - 3	1 - Outcomes carried over

One 2011-2012 outcome related to awareness and compliance with national safety standards was assessed again in 2012-2013. Two new student learning outcomes were identified. Due to curriculum sequence, the new outcomes are similar to the outcomes from last year except they involved assessment of structured components rather than non-structured components. They assess students' ability to performing structural, mechanical, and electrical repairs and utilize critical thinking as they relate to problems encountered with structural repairs. All of the outcomes met their target levels of achievement. The outcome related to safety standards will be assessed again into 2013-2014.

6. Computer Aided Drafting and Design

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 3	3 - Outcomes carried over

Three student learning outcomes from 2011-2012 were assessed again in 2012-2013. Two related to skill competencies of geometric construction and creating working drawings. The third outcome related to the students' ability to demonstrate knowledge of geometry. All three outcomes met their target levels of achievements. For two of the outcomes, however, faculty felt the need to improve online delivery and developing more user-friendly presentations. Faculty identified the students' lack of awareness of math requirements as a major problem. Plans are being implemented to improve orientation of CADD students along with advisor awareness of the math requirements needed for success in this program. All three outcomes will be assessed again in 2013-2014.

7. Computerized Manufacturing and Machining – Danville Campus

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met – 1 Partially Met - 2	2 - Outcomes carried over

The 2011-2012 student learning outcomes were assessed again in 2012-2013. Two related to skills; using machine tools to produce a product within QC and tolerance specifications and the students' ability to use precision measuring tools. Interpretation of machine tool working drawings was also assessed. Students met the achievement target levels in their ability to use precision measuring tools and partially met the target level on the other two outcomes that will be assessed again in 2013-2014. Strategies for these two outcomes include: allowing additional time on projects, demonstrations on the use of machine tools, and use of YouTube and online videos to improve students' interpretation of machine tool drawings. In 2013-2014 students will also be assessed on their ability to set up and operate drill press and sawing machines.

8. Computerized Manufacturing and Machining – Lexington Campus

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 3	3 - Outcomes carried over

The student learning outcomes from 2011-2012 were assessed again in 2012-2013. The outcomes incorporated the use of a product to demonstrate their ability to develop a heat driven motor, an operating Turner's cube, and the use of spirit CNC machines and lathes. All three outcomes met their target levels of achievement. Strategies to improve students' success include expanding lab time to allow students more time to work on the projects and to adjust the project start time for the heat driven motor. The outcomes will be assessed again in 2013-2014.

9. Construction Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 3	1 - Outcomes carried over

The 2011-2013 student learning outcomes were assessed again in 2012-2013. They included construction of residential structures, demonstrating safe practices, and critical thinking and problem solving associated with skills in construction technology. All three learning outcomes met their target levels of achievement. Incorporation of updates in scaffold safety into lesson plans and using varying methods of instruction to challenge the students to think critically and resolve problems are strategies that are planned to be implemented in 2013-2014. Two new outcomes will be assessed in 2013-2014 with the students' ability to critical think and resolve construction technology problems to be assessed again in 2013-2014.

10. Cosmetology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
3 - Outcomes carried over	Met - 3 Partially Met - 1	1 - Outcomes carried over

The three 2011-2012 outcomes were assessed again in 2012-2013 with a fourth outcome added to the assessment plan. Three of the outcomes related to skills in performing haircuts, foil highlights and demonstrating deep cleansing facial techniques. The fourth outcome related to critical thinking associated with mechanical exfoliation. The achievement target levels were met on the performance outcomes. The target level of achievement for critical thinking was partially met. This outcome was revised and will be assessed again in 2013-2014 along with the ability to perform haircuts. Strategies being implemented to improve student success include additional training on haircuts, and the incorporation of new and advanced facial techniques. Two new outcomes related to students' proficiency and application of nail techniques and advanced facial procedure techniques will be assessed in 2013-2014.

11. Equine Studies

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
2 - Outcomes carried over	Met - 2 Partially Met - 1	2 - Outcomes carried over

Two of the 2011-2012 student learning outcomes were assessed again in 2012-2013 and one new outcome was identified. One of the outcomes was associated with the Trainer Option to analyze and apply the Condition Book in determining appropriate races. One outcome assessed students in the Jockey Option in develop riding skills necessary for a successful jockey. The third related to the identification of body parts and horse care in a race barn. The achievement target levels for determining appropriate races and identification of body parts and horse care in a race barn were met. The ability to develop riding skills was partially met. Faculty plan to identify student weaknesses and providing individual attention as needed. Other strategies for student improvement include additional time for mock situations applicable to use of the Condition Book and emphasis of body parts and horse care in other courses. These two outcomes will be assessed in 2013-2014 along with an outcome specific for students' ability to gallop a race horse.

12. Fire Science Technology

Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
2 - Outcomes carried over	Met - 1 Partially Met - 2	2 - Outcomes carried over

Two student learning outcomes from 2011-2012 were assessed again in 2012-2013. The additional outcome was a modification of the third 2011-2012 outcome. It involved changing students' preparedness from auto rescue to aircraft rescue. The other two outcomes related to treating trauma/obstetric patients and analysis of fire stages and development. The target level of achievement was met on students' critical thinking and analysis of fire stages and development. The remaining two outcome achievements were partially met. Strategies to treat trauma patients include the implementation of an improved workbook and promoting free online study guides. Strategies to improve students' success in preparedness for aircraft rescue include implementing pop quizzes and homework assignments. These two outcomes will be assessed again in 2013-2014 along with a new outcome related to performing emergency decontamination procedures.

13. Welding

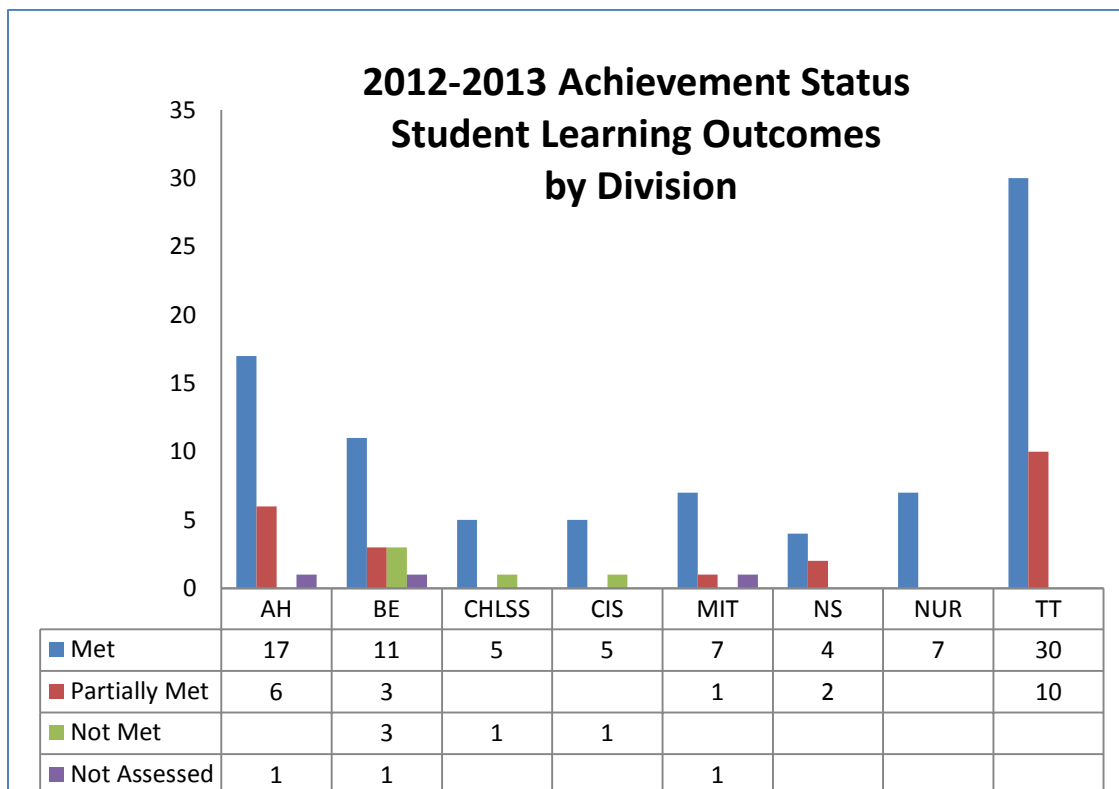
Outcomes Carried Over from 2011-2012	2012-2013 End of Year Achievement Status	Outcomes Carried Over to 2013-2014
2 - Outcomes carried over	Met - 3	3 - Outcomes carried over

Two of the 2011-2012 student learning outcomes were assessed again in 2012-2013. They assessed the student's ability to apply knowledge of forming, fitting and welding processes and using blueprint skills. A new outcome assessed students' problem solving skills in repairing weldable materials. All three met their target levels of achievement. Strategies to be implemented to improve students' success include: additional projects in forming, fitting and welding processes, additional lab time for repairing weldable materials and blue print reading skills. All three outcomes will be assessed again in 2013-2014.

Findings

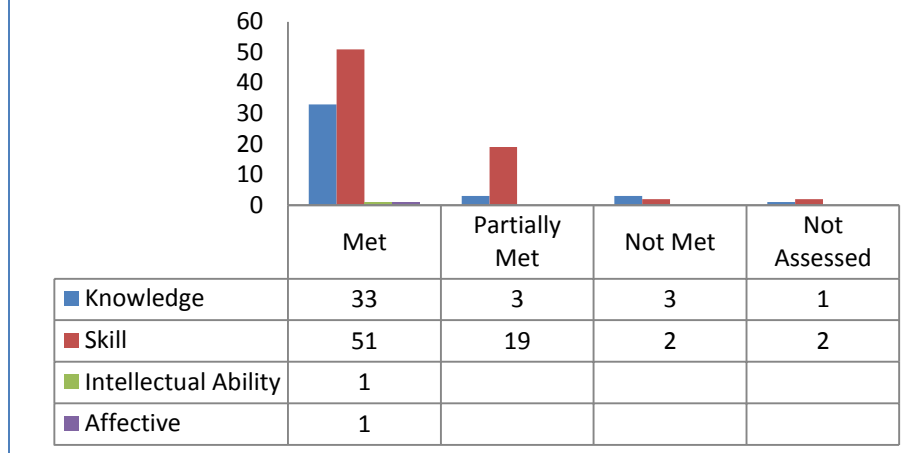
Of the 2011-2012 student learning outcomes, 84 were assessed again in 2012-2013 and 32 new outcomes were identified by the various programs. Eight academic divisions were associated with technical programs assessments of student learning outcomes: Allied Health (AH), Business and Education (BE), Communications, History, Languages and Social Science (CHLSS), Computer Information Systems (CIS), Manufacturing Industrial Technologies (MIT), Natural Sciences (NS), Nursing (NUR), and Trades and Technologies (TT).

At the end of the year, the program coordinators categorized their findings as “Met”, “Partially Met”, “Not Met”, or “Not Assessed” based on the target level of achievement identified for each outcome.



Of the 116 student learning outcomes identified for assessment in 2012-2013, 86 (74.1%) met their target level of achievement, 22 (19.0%) were partially met, 5 (4.3%) were not met and 3 (2.6%) were not assessed.

2012-2013 Achievement Status by Learning Domain



Examination of the outcomes based on learning domains shows 115 within the cognitive domain. This includes knowledge, skills, and intellectual ability. One outcome targeted the affective domain of learning. Based on these learning domains, 40 outcomes targeted knowledge with 33 (82.5%) meeting their target level of achievement, 3 (7.5%) were partially met, 3 (7.5%) were not met and 1 (2.5%) was not assessed. Of the 74 outcomes related to skills shows 51 (68.9%) outcomes met their target level of achievement, 19 (25.7%) were partially met, 2 (2.7%) were not met, and 2 (2.7%) were not assessed. The single outcomes related to intellectual ability and affective domains were met.

Strategies were identified to improve students' success. Several of the more common action plans or strategies included:

- Expansion of group activities
- Increased laboratory time and additional time on assigned projects
- Improved or enhanced delivery of material, targeting specific areas of weakness.
- Additional hands on time, additional exercises and practice to reinforce specific concepts.
- Increased collaboration efforts
- Earlier feedback to students
- Improving online presentations
- Additional projects
- Based on the findings in 2012-2013, 88 outcomes were carried over and are being assessed in 2013-2014. Approximately one third of the programs are assessing the same outcomes in 2013-2014 that were assessed in 2011-2012 and 2012-2013.

Concluding Remarks

All program assessment plans were completed in 2012-2013 with major improvements in identifying learning outcomes, analyzing the results, and documenting how the findings will be used for improvements. Of the 116 student learning outcomes identified for assessment in 2012-2013, over 95% met or partially met their target level of achievement. Of the remaining outcomes, five did not meet their target level of achievement and three were not assessed.

Most of the outcomes targeted cognitive learning involving skills (74 outcomes) and knowledge (40 outcomes). Students demonstrated the highest success on knowledge related outcomes with 82.5% of the outcomes meeting or exceeding their target level. This compares to 68.9% of the skill related outcomes meeting or exceeding their target level of achievement.

While BCTC provides a diverse menu of programs and student learning outcomes being assessed, many of the strategies for improvement were strikingly similar. Some of the more common ones included: extra time on specific projects, more hands on experiences, additional time in the laboratory, and revisions or improvements in the delivery of materials that target “weak” areas identified from the assessments.

It is unclear why many of the learning outcomes have been carried over for more than two assessment cycles. Additional work is needed to educate program coordinators about identifying new outcomes or program competencies for assessment after two consecutive (and successful) assessment cycles.

As part of BCTC’s continuous improvement model, the assessment coordinator will continue to work with program coordinators to improve the clarity and quality of the outcomes with appropriate measures. When meeting with program coordinators in spring 2014, the assessment coordinator will implement a revised rubric to evaluate each assessment plan, emphasizing the importance in analyzing findings, developing action plans for improvement, and identifying new outcomes (after successful assessment of current outcomes). The significance of result analysis and “next steps” will continue to be emphasized.

The Assessment Newsletter will also be used to provide aid to program coordinators in best practices in assessment. The fall issue discussed the various assessments and measures used to illustrate the health of each programs. The spring issue will focus on “next steps” in assessment.