

CTEC Advisory Board Meeting April 12, 2019

Attendees

Bill Allred, Citizens
Megan Bange, BPCC
Wesley Bange, BPCC
Rachel Basco, BPCC
Mark Davis, Asteri Networks
Bryan Dickens, Cybint Solutions
Gayle Flowers, BPCC
Chuck Gardner, Cyber Innovation Center
Miguel Gates, LA Tech
Zach Glass, EATAL
Randy Haley, Ingalls Information Technology
Tom Hopkins, BPCC
Cedric Johnson, General Dynamics
Jennifer Lawrence, BPCC
Cesar Marrero, Xentient Technologies
Jennifer McCoy, BPCC
Stacey Miller, Cyber Reef
Pam Milstead, BPCC
Rhonda Neil, BPCC
Kevin Nolten, Cyber Innovation Center
Natasha Regard, Asteri Networks
Don Rider, NSU
Chris Rondeau, BPCC
Amy Russell, BPCC
Al Shaw, BPCC
Suzanne Shipp, BPCC
Annette Shows, BPCC
Mack Slaughter, Allegiance
Paul Spivey, BPCC
Jada Spillers, BPSTIL
Mark Summers, General Dynamics
John Sweet, Cyber Reef
Lesa Taylor-Dupree, BPCC
Rodney Thompson, LSU
Stewart Thompson, Bossier Parish Schools
Paul Weaver, BPCC
Angie White, NLEP
Thomas Woods, Magee Resources

Welcome and Introductions

Megan Bange called the meeting to order and welcomed everyone in attendance. Megan informed the board that CIS/CIT have now been joined into one category referred to as CTEC (Computer Technology). Megan turned the meeting over to Paul Spivey to discuss voting items. Megan explained that we are now sending out voting items prior to the meeting so that the meeting could be more of a round table discussion.

Voting Items

Paul Spivey recapped the voting items and let the board know that all of the items submitted to the board members were approved.

1. Approval of existing Program Learning Outcomes for Cyber Technology (Network Security) degree. This year there are no changes. Recipients of the Associate of Applied in Cyber Technology with a concentration in Network Security will be able to:
 - a. read and interpret technical literature and convey technical information through verbal and written communication;
 - b. analyze critically and solve real-world security issues understanding the legal and ethical concerns;
 - c. demonstrate security awareness in order to react to new developments in their field;
 - d. utilize critical thinking skills to collect, analyze and interpret technical data collected through investigation and experimentation; and
 - e. implement computer networks and firewalls both physically and logically.
2. Approval of Cyber Technology (Network Security) degree being 60 credit hours.
3. Elective Update - Change "CTEC Elective" to be "CTEC 101: Information Technology Principals OR Approved CTEC Elective. "Rationale - encouraging CTEC 101 would give students a better foundational class to begin the curriculum. CTEC 101 is mapped to CompTIA's IT Fundamentals Certification. Feedback from students is that they wish they had this course at the very beginning of the program to better prepare them for advanced courses. However, some students may have a more advanced background coming into the program and would want to use that elective on another higher-level course. The option of CTEC 101 or a CTEC Elective gives more flexibility based on the student's prior knowledge.
4. Elective Change - Replace "CTEC Elective" with "CTEC 104: Introduction to Scripting. "Rationale - It is becoming more common that students in network security have a greater understanding of scripting languages such as PowerShell.
5. Approval of existing Program Learning Outcomes for Cyber Technology (Programmer Analyst) degree. This year there are no changes. Recipients of the Associate of Applied Science in Cyber Technology with a concentration in Programmer Analyst will be able to:
 - a. read critically, interpret, and document technical information accurately;
 - b. analyze critically and solve real-world end-user problems;

- c. implement programs in multiple computer languages; debug and test software;
 - d. utilize critical thinking skills to collect, analyze and interpret technical data; and
 - e. describe application web server and programming as well as the ability to program websites and computer applications.
6. Approval of Cyber Technology (Programmer Analyst) degree being 60 credit hours.
7. Course Change - Replace "CTEC 112: IT Hardware Support" with "CTEC 101: Information Technology Principals. "Rationale - CTEC 101 would give students a better foundational class to begin the curriculum. CTEC 101 is mapped to CompTIA's IT Fundamentals. Currently, students in the Programmer Analyst concentration are taking CTEC 112 which only focuses on hardware. This change will give the students a broader foundation into software, hardware, networking, security, etc.
8. Course Change - Replace "CTEC 113: Introduction to C++ Programming" with "CTEC 266: AWS Developer Associate. "Rationale - CTEC 266 is mapped to Amazon's Developer Associate certification. Introducing students to more cloud-based development would be more valuable than introducing them to another language, C++. A programming student would still learn python, java, javascript, HTML5/CSS3, C#, and kotlin.
9. Course Change - Replace "CTEC 213: Advanced C++ Programming" with "CTEC Elective" with those electives being the following: CTEC 104 Introduction to Scripting CTEC 165 Introduction to Virtualization CTEC 270 Cloud+ CTEC 279 Information Assurance CTEC 282 Information Technology Project Management CTEC 285 Health Informatics for IT Professionals Rationale - With the removal of C++ from the program, this elective spot will allow a student to take a course that will better prepare them for a specific field or will give an option for a more diverse class offering outside of the program.
10. New Program - Replace the Cyber Technology (Programmer Analyst) degree with AAS Software Development degree. Rationale - the Cyber Technology (Programmer Analyst) degree was first set up as a concentration. Since then, the two concentrations are not truly concentrations anymore. The program is moving towards more concept-based learning in addition to the language based learning which is more in line with software development. This vote proposes to create a new AAS program called Software Development which would take the place of the AAS Cyber Technology (Programmer Analyst) concentration.
11. Approval of existing Program Outcomes for Computer Information Systems degree. This year there are no changes. Recipients of the Associate of Applied Science in Computer Information Systems will be able to:
 - a. accurately read and communicate technical information;
 - b. analyze current technology issues;
 - c. develop solutions to technology issues;
 - d. demonstrate skills for entry-level employment in information technology; and
 - e. identify basic business terminology, concepts, and principles.
12. Approval of Computer Information Systems degree being 60 credit hours.

13. Course Change - Remove "CTEC 111: Internet Technology" from the curriculum. Rationale - This course teaches students basic internet protocols, threats, and solutions but oftentimes students are already familiar with the content. We want to teach the course out and remove it from the curriculum. If approved, we will discuss during the advisory board potential courses to put in its place.
14. Approval of existing Program Learning Outcomes for Systems Administration (DevOps) degree. This year there are no changes. Recipients of the Associate of Applied in Systems Administration with a concentration in DevOps will be able to:
 - a. read and interpret technical literature and convey technical information through verbal and written communication;
 - b. communicate effectively and collaborate with other team members;
 - c. explain the software delivery process from concept to completion;
 - d. demonstrate an understanding of differing software development approaches;
 - e. demonstrate an understanding of the role of IT operations; and
 - f. demonstrate an understanding of quality assurance by being able to debug and test software.
15. Approval of Hours - Systems Administration (DevOps) degree being 60 credit hours.
16. Course Replacement - Remove CTEC 210: Advanced Network Topics and replace it with CTEC 112: IT Hardware Support. Rationale - adding CTEC 112 would give students a better understanding of hardware and would better prepare them for the advanced courses later in the curriculum.
17. Approval of existing Program Learning Outcomes for Systems Administration (Enterprise Information Technology and Development) degree. This year there are no changes. Recipients of the Associate of Applied Science in Systems Administration with a concentration in Enterprise Information Technology and Development will be able to:
 - a. read and interpret technical literature and convey technical information through verbal and written communication;
 - b. analyze critically and troubleshoot computer system issues;
 - c. demonstrate an understanding of user account permissions;
 - d. utilize critical thinking skills to collect, analyze, and interpret system logs and user activity; and
 - e. maintain internal systems by installing system updates, patches, and security protection.
18. Approval of Hours - Systems Administration (Enterprise Information Technology and Development) degree being 60 credit hours.
19. Course Replacement - Replace the old CIT 211 Data Storage Admin course with CTEC 266: AWS Developer Associate course. Rationale - The Amazon Web Services Developer Associate course was approved for development during the last advisory board to replace

the content in the CIT 211 Data Store Admin course since it was outdated and focused on Hitachi. Now that it's developed, this would officially replace the old course.

Additional voting items not previously submitted to the board

The meeting was turned over to Pam Milstead, Program Director for Computer Information Systems who proposed new CIS Program Learning Outcomes.

Current

CIS Program Learning Outcomes

Recipients of the Associate of Applied Science in Computer Information Systems will be able to:

1. accurately read and communicate technical information;
2. analyze and respond to real-world technology issues;
3. interact with computer professionals;
4. demonstrate skills for entry-level employment in information technology; and
5. navigate and use the Internet for communication and research.

Proposed New

CIS Program Learning Outcomes

Recipients of the Associate of Applied Science in Computer Information Systems will be able to:

1. accurately read and communicate technical information;
2. analyze current technology issues;
3. develop solutions to technology issues;
4. demonstrate skills for entry-level employment in information technology; and
5. identify basic business terminology, concepts, and principles.

Mark Summers made the motion to adopt the new Learning Outcomes and the motion was seconded by Natasha Regard. All were in favor of the change and the new Program Learning Outcomes were approved.

The board has already voted to remove CIS 111 – Internet Technology, now we are looking for suggestions for its replacement. Pam mentioned the following classes that BPC already has in place that the members may want to consider:

- security
- virtualization
- Cloud+
- Server

Incorporate Server, databases and active directory were some of the suggestions industry feels that will be helpful for students.

Curriculum Updates

Meeting turned over to Megan to discuss updates regarding curriculum. Megan explained that the TCA's are now referred to as CTC (Career and Technical Certificates). Megan advised that we have developed two new CTC's, Help Desk and Network Security. These two items going before the board for approval. CTC in Help desk will go before the Board of Regents April 24, 2019 and CTC in Network

Security which includes the CompTIA courses (Net+, A+, and Server+) will be hopefully approved in June of 2019.

BPCC Grants and Foundation

Meeting turned over to Dr. Jennifer Lawrence with Bossier Parish Community College. Jennifer started in Cyber and is now working with Grant Funds. The grant division along with Cyber are working toward a major opportunity with the NSF this fall and we may request letters of support in expanding our cyber reach. We are trying to increase capacity for students. Jennifer is also an advocate for the BPCC foundation, and we have an endowed scholarship in Cyber and CIS. Jennifer is planning on working to try and get two endowment professorships for Cyber and CIS.

6th Annual 3CS Conference

Chris Rondeau began talking about the 3CS conference that will take place from July 30th through August 1st, 2019. There is a Tuesday night kickoff at the Horseshoe Riverdome, Wednesday full day conference and Thursday will be half day conference.

On July 29th IBM has partnered with BPCC to offer Cyber Girls event for 7th - 8th grade girls. Helps young girls realize what's out there for them in the cyber technology field when they want to start looking towards the future and college.

Girl Scout badge night on the 30th from all six levels of Girl Scouts receiving cyber badge from Cyber Innovation Center.

Industry partners were asked for support so that we can add into the endowed professorship.

Additional Updates

Paul Spivey began to tell about the developments from the past year. BPCC received a grant to explore cyber range capabilities and platforms. BPCC partnered with Cybint and held two workshops one to bring in industry partners and the other for academic. We have received additional funding and we will have a full-time cyber lab where employers can see what our students can do. It would be a lab where threats can be assessed and allow students to work on teams such as red team – blue team or capture the flag. This will be discussed more through internship but BPCC is happy to have this opportunity for our students.

Meeting was handed over to Cesar Marrero to lead the round table discussions.

V. Internships.

a. Internships

i. Lack of internship sites

The first item to discuss was the lack of internships. Chris Rondeau advised the board that during the previous semester, he was needing 15 students placed into an internship position. Previous sites were contacted about possible placement and we received no response.

Randy Haley with Ingall's Information Technology suggested that updates may need to be made with our businesses. Haley also recommended that additional contacts within

the company be added so that requests for interns don't "fall through the crack". Haley volunteered to be the contact for Ingall's.

Paul Spivey suggested that if anyone wanted to add their information as a point of contact for interns respond to one of Paul's emails so that the information could be forwarded to the appropriate people.

Mark Snellgrove with Centurylink said that he firmly believed in the internship program and said that many businesses may be leery of internships because of the work and or expenses to the company.

Natasha Regard with Asteri expressed that there may need to be an expectation of management on both the interns and industry so that the expectations for both are clear and concise. In the discussions of expectations, schedules, and level of supervision needs to be discussed.

Cesar Marrero expressed that he believes that students need to get their hands dirty and actually work while in an internship. Marrero stated that they should be working on cyber work and not just reporting to an office two or three days a week.

ii. Potential alternative capstone for Network Security

Chris Rondeau advised that as of now, there isn't a capstone course to be used in place of the internship. BPCC is trying to develop a Cyber Range type of event where we can give "real-time" treat analysis or penetration testing. Chris said that a statement is to say internship "or" capstone course.

Randy Haley said that they developed a program where students were given 15 projects that they would have to do and that it was a step by step process over the course of a semester taking all that they have learned to complete the 15 projects.

Bossier Parish Community College has non-traditional students who have jobs, families and most partners have 9 to 5 business schedules that would not benefit our students where a capstone course would.

Cesar Marrero gave Cyber Patriot as an example of source to start building a capstone course. Cyber Patriot is training for high school students so that they can do pin testing. The purpose is a competition where there are a lot of holes where a student's job is to patch the holes.

b. Certifications

i. In demand/not in demand

Natasha Regard with Asteri stated that the AWS certification is important. Cesar Marrero would like even programmers to have the A+ Certification. Don Rider with NSU said the students will know hardware internet of things and that NSU requires the A+ Certification for their students, even the programming students. Don also said that it takes 60 hours to receive the certification. 45 hours of technical study and 15 hours of academic study. Thomas Woods with Magee Resources discussed specifications that

many employers look for in an employee. More and more companies are leaning towards certifications. CIO's and CTO's say they see that the person has the degree but wonder if they can do the work.

Cesar Marrero brought up National discussion degree vs certifications. He believes that the individual should have both. The college degree shows that they have studied the material and the certifications show that they have performed. Thomas Woods agreed and said that the person getting the degree took the time to finish what they started and many employers value that.

Jada Spillers, Principal of BPSTIL, asked what certifications are needed in industry. Many industry partners stated: Net +, Security +, A+ and that IF Fundamentals Certification may be great for the high school students.

ii. On the rise

ITIL is being used from a business aspect with Agile Software Development. Mark Snellgrove said is beneficial for getting jobs initially, but once they come into a position, they will get other certifications that are more job specific to the job that they are performing.

CompTIA prepares for CISSP at different levels. The benefit is when auditors come in, the business can prove that the employee are certified to do the job. Agile is something that we all need to know.

Cesar Marrero suggested students obtain general certifications rather than more specific certifications. Wesley Bange with BPCC agreed. He also stated that CISCO isn't the only certification, but it shows a basic understanding of the technology that runs networking. They can configure the protocols needed. It's like programming you know C+ but can be taught Java. Employers can "configure" what the employee knows.

Two-year schools are difficult. Net+ gives a good foundation in networking and Security+ gives you a good foundation in security overall, but Security+ is stuffed in one semester and there is a lot to learn.

Natasha Regard questioned if they have the certification, but they haven't "done" anything, they feel that the certification is worthless. The focus should be on somehow showing what the person can do rather than obtaining certification after certification.

Paul Spivey said that although not approved, LCTCS is partnering with Amazon to create a Cloud AAS. Also creating a CTC that is a smaller collection where a student can obtain in one semester. Want to articulate agreements with all the community colleges in the state. They have talked about creating a new associate's program or collection of classes that embeds into our existing programmer analyst, now software development degree. We need to know what is valuable for someone already set in the workforce to come in and take and what would be valuable for a person who is "green" does it make sense to only get a cloud degree or should they get something that has the foundation to go into programming with Cloud embedded.

Natasha Regard answered that she felt the foundation with cloud embedded would be better. She explained that an employee would more than likely be doing more than one thing, unless they went to a large city and where the job would be more specified.

Paul Spivey explained that BPC is looking at two certifications, the first is developer associate and the second is a solutions architect. The second would be more general and across the board cloud infrastructure. It would be a great opportunity but would compete with what we currently offer. It was decided that a CTC degree option would be most beneficial.

It was discussed that we wanted to move forward, that we provide a “reason” for someone to pay to take the courses at BPC versus taking online certification tests possibly for free. We would need to state that we would provide interaction vs reading. We would have an instructor that you could engage with concerning questions and next steps.

c. Company Needs (Technical and other)

Cesar Marrero led into company needs on the agenda discussing his company. He advised that they are needing DevOps and wants people to understand the whole point of DevOps is having a degree AND experience. They need to know life cycle management.

Natasha Regard stated that there are several things that are needed. She advised that our learning outcomes are important and that basic skills can get you in the door.

Randy Haley with Ingall’s said that their company needed stock analysts. People who would start at the ground level and work their way up. The more they work, they would build as tier 1, 2 and 3 engineers and would be given more responsibilities.

Cloud Security was discussed. It was mentioned that in a cloud environment, each person associated would be more hands-on when it comes to security.

No other needs were mentioned, and the meeting moved to the next topic.

d. Gaps in Curriculum or Student Knowledge

During this discussion the following gaps were noted:

1. Creative thinking
2. Problem solving
3. Discussion of expectations and reality (six figure salaries)
4. Social Skills

Rhonda Neil described her soft skills class that was offered as a part of the Computer Information System Curriculum. She asked if they thought it was important and wanted it in the other programs. She mentioned that a technical class would have to be removed for soft skills to be added. The discussion led to embedding it in all classes by way of team building and projects.

No other items were introduced, and meeting was adjourned at 1:12. Handouts available upon request.