**Instructional Unit – Program Review**

**Part 1: - Program Overview**

**Program Name: Computer Information Systems**

**Program Mission and Description:** The Computer Science department (CIS) has the same mission statement as the College. In addition, the mission of CIS is to become the community college leader in computer science. The Computer Science department (CIS) has three-degree programs, Networking, Programming and Web Development. We have two instructors at the Jefferson campus and three at Shelby campus. To follow our mission, CIS is starting to offer the latest technology courses in Programming, changing our Networking option and completing a major update in Web Development. Just this past year, CIS has worked on and was approved for a fourth option – Cybersecurity.

**Program Admission and Awards:** The admission process is the same as the colleges. While pursuing a degree for all our options, students will receive a short certificate, certificate and AAS Degree.

**Program Demographics:** Please complete the following chart for your area (this data can be found on the IE website or by contacting ie@jeffstateonline.com

|  |  |  |
| --- | --- | --- |
| **Category** | **Student Totals (3yrs)** | **Percentage (of total students)** |
| Total Students | **647** | **42** |
| Number of Male | **10329** | **16** |
| Number of Female | **16303** | **26** |
| Age 18-25 | **12752** | **21** |
| Age 26-40 | **9210** | **15** |
| Age 41+ | **1611** | **3** |
| African American Students | **5435** | **9** |
| American Indian/Native Alaskan  | **158** | **.24** |
| Asian Students | **496** | **.76** |
| Caucasian Students | **17800** | **28** |
| Hispanic Students | **1427** | **2** |

*In review of the data above do you see any trends that are encouraging or discouraging?*

The number of female students is encouraging. In Computer Science there is a need for female networking specialist.

*How would you address those trends?*

First, we would start advertising our options more. Doing this would increase our enrollment by making sure we target all demographics.

**Mode of Delivery:** Currently our mode of delivery is online only due to Covid-19. In time we will move back to classroom and online instruction.

*Which locations support your program/department?*

Clanton, Jefferson, Pell City and Shelby support our program. Currently, Clanton and Pell City instruct in the basic computer courses.

*Do you have any plans to expand these delivery methods or locations?* Not at this time.

**Program/Department Goals:** Please list your program/department goals below:

1. Begin the Cybersecurity option in the spring semester.
2. Work towards increasing enrollment in Cybersecurity option.
3. Update the Networking option to current standards.
4. Continue to instruct programming languages used in today’s market.
5. Overhaul the Web Development option to reflect industry standards.

**Program/Department Outcomes Achievement:**

We do not have data from the previous Program Review. We cannot link the Student Learning Outcomes in each course. CIS does not have access to the previous Program Review to know what the outcomes were to enter data. Attached you will find the three years of assessment data found on the Institutional Effectiveness website. to the Program/Department outcomes.

**Part 2: Program/Department Change**

**Program/Department Goal Changes:** We currently do not have information for the Cybersecurity option since it doesn’t start till spring 2021. In the Networking option there are two paths, CISCO and Microsoft. Students must take each for an AAS, both paths are separated in the certificate and short certificate. In the CISCO path, there are four courses that must be taken in a sequence. Once all courses are completed, students are ready for the CCNA certification. Currently, the college offers courses in Microsoft to prepare students for the MTA and MCSA certification. The Networking option must be updated, the certifications used in our current degree plan are expiring January 31, 2021. To catch up with today’s industry we must focus on the Cloud Network.

The Advisory committee’s information discussed networking today and how we need to direct our attention to cloud computing. The cloud is the practice of using a network of remote servers hosted on the Internet. This will provide our students with better career opportunities. In Web Development, the courses taught do not match what web developers do today. We are moving towards full stack development. Full-Stack developer works with both the front and back ends of a website or application. These changes will take time. New courses will need to be created for the ACCS’s guide.

**Course Student Learning Outcome Changes:**

* CIS 202 Python Programming added to both Cybersecurity and Programming option.
	+ Programming language most used in the cybersecurity field
	+ Expected to continue for the foreseeable future.
* CIS 208 Advanced Web Development removed from curriculum
	+ Has been dropped every semester offered.
	+ Most students are proficient in creating their own websites due to software on the market.
* CIS 222 Database Management Software added to Cybersecurity and Programming option.
	+ Students need the knowledge of the backend software that houses the user software.
	+ Valuable information is stored in database management software and must be protected from hackers.
* CIS 216 Advanced C# Programming
	+ Dropped from the programming option
	+ Included in CIS 215 C# Programming
* CIS 280 Network Security
	+ Removed from networking option
	+ Replaced by CIS 260 Network Security and Risk Management
	+ We do not need two Network Security courses in curriculum. CIS 260 covers the same material as CIS 280.

These changes will decrease the number of dropped courses from fall, spring and summer semesters. In keeping up with the career paths, courses need to be updated to better suit our students for present and future employment.

**Part 3: Evidence of Staff Participation in Program Review**

**Faculty/staff participation:**

A department meeting was held on September 9,2020 with administration and faculty. The CIS faculty gave their input on the changes in the information technology fields. Those included in the meeting were Tommy Battles, Tony Blevins, Melanie Cox, Wade Crawford, Linda Dobyns and Sandi Logan. Administrators who attended were Danielle Colburn and Liesl Harris. A meeting with our Advisory Committee was November 4, 2020. This was more of a question-and-answer meeting. The Advisory members discussed the growing trends in Computer Science and what they are using and moving towards in their corporations. The Advisory Committee meeting minutes are attached.

**Advisory committee minutes and list of members**:

COMPUTER SCIENCE SEMI-ANNUAL ADVISORY COMMITTEE MINUTES

November 4, 2020

Date: Wednesday, November 4, 2020

Time: 10:00 a.m.

Location: Zoom.us

**In attendance**:

**CIS Faculty: Shelby**

Linda Dobyns, CIS Inst., Prog. Coordinator

Sandi Logan, BUS/Info Sys. Dept. Chair

Tommy Battles, CIS Inst.

Anthony Blevins, CIS Inst.

Melanie Cox, Office Manager

**CIS Faculty: Jefferson**

Wade Crawford, CIS Inst.- Jefferson

Syed Raza, CIS Inst. – Jefferson

**Administration:**

Liesl Harris, Assoc. Dean General Studies

Danielle Coburn, VP Academic Affairs

**Advisory Members:**

Steve Ballenger, Committee Chair, Al. Dept. of Forensic Sciences

Josh McCutchen, EBSCO

Leighton Vance, Liberty National Life Ins.

Tracy Henderson, Southern Company

Carlos Luzuriaga (Ortiz), Everis

David Vernon, Amerex Corp.

Kennedy Okoro, Star Bright Tech.

**Absent:**

John Love, Retired City Birmingham

Tiffany Todd, BUS/Info Sys. Dept. Chair

The Computer Science Advisory committee members held their semi-annual meeting on Wednesday, November 4, 2020 at 10:00 a.m., via Zoom.us.

Linda Dobyns began the meeting at 10:00 a.m. She welcomed everyone and introduced herself as the new program coordinator for CIS. She called on everyone to introduce themselves.

Linda told the committee that the Cybersecurity option was approved. We will begin teaching those classes in the Spring 2021.

She asked the committee where the job market stands in Cybersecurity? Steve said Huntsville, AL – more specifically the banking industry. Carlos said his company is working with BBVA with a combination of cloud with Cybersecurity and Fraud with Cybersecurity. These are two of the hottest topics in the industry. Tracy said it is huge in the utility industry. They get more and more regulations put on them every year. His company has several people working in the security space industry. Linda said that this would give students ample potential for job seeking. She said she would update everyone in the Fall meeting after we have had a chance to teach a couple of semesters. We are very excited about this.

**Networking**

Linda said she found out that Microsoft is doing away with all the exams she teaches. She asked the committee to help her moving forward. What are they doing now in networking besides going to the cloud? Josh said that is what his company is trying to do – the cloud. He said that’s where everyone is trying to get to now. Linda has looked all over the Microsoft website and talked to the representative, but he wasn’t able to assist her. She wants to know what is best for our students to help them graduate in the Networking field beside the CCNA. Josh asked if Cloud certification classes were an option – Azure, AWS? That’s where it’s going. Linda said she wants to get us to the place where other community colleges look to us to see what we are doing. Josh said they have multiple certification paths – software and hardware side. He said that is where he would start. That seems to be where everything is going. His company is pushing for certification in the AWS direction. Carlos said BBVA is also forcing, in their new hires, to have at least one AWS certification. There is a basic one called AWS cloud practitioner and Azure has one similar. It is just basic cloud contents. He would suggest that the students in the classes get at least the AWS or Azure certification. Linda said she was told to look into those options, but we have been teaching Microsoft for so long. She asked if they still focused on server administration. Josh said that you can, but many people will actually let the cloud manage your hardware. Carlos said the contents are slightly different. They are not networking anymore there are not servers -Microsoft AWS is going to do that for you. You need to be able to run the scripts to be able to add more servers to your company when needed. The approach is slightly different – the contents are pretty much the same between the three clouds (Google, Microsoft, and AWS) the most important thing is that the people get the grasp of the contents. David said at Amerex they are a hybrid – they still have physical servers either onsite or not. They have about as many servers as they have the cloud. The email, share point they are in the cloud and using an Azure connection. Some companies will transition over, but many will still have physical servers on premise. Tracy said his company will also have both for quite a long time. Linda said she would need to look into these options and see if they are in the state guide for ACCS. Linda said she really appreciates their input. Syed said you could also look over the IBM skill area – they have a lot of courses which relate to the IBM setup. There is huge demand for this area as well. The demand for physical is not going to go away – although the cloud is upcoming. IBM is a key in this. There are a couple of ways you could go.

**Programming**

Linda referred to Tommy, Tony and Syed as this is their primary area of study. She mentioned we have added Python and it is in the schedule to begin this Spring. Linda asked what the job market is like for students in the programming area. Steve said it is high demand for entry level programmers. He said Protective, BBVA, BCBS usually send him an email asking for students that are entry level programmers for employment opportunities. Carlos said he thinks Python is a very good idea because data manipulation, big data is becoming key. Python it is one of the primary languages. If we could combine Python with other big data analysis – Cybersecurity, Cloud, and Big Data are the three biggest demand market. So apart from teaching Python even then some fundamentals around big data would be great. Tracy said that he seconded the issue of Python. Data analytics is a huge area of focus for his company, so they are looking for people with Python skills. As far as the market – it is a very strange time, with the pandemic, his company has just come out of a hiring freeze. Most people are now working remotely. When all things begin moving forward, we will probably still work remotely, and location will not tie you up as much. If a job is open in Birmingham, you don’t necessarily have to move there. Syed mentioned that while teaching Python course we are attaching the basic certification and that’s why we teach Cobol curriculum which aligns with the certification of Python. We are encouraging students to take the final exam as a certification so at least they can attempt to get the certification. If they can’t pass the first time, they have an option to take it again. Hopefully down the road we can add other courses that are scenario based and certification based. Tony said he appreciates the input of Tracy concerning the work industry as it is now and would like to receive input from the other advisory board members as to what they see the new normal down the road to open up hires for new employees. Josh said his company has already let go of their office space because they are consolidating down. He doesn’t even have an office to go back to anymore. They have hired new people with no issue of location and many of their people have moved outside the area with no problems. This will allow them to be able to get candidates from other areas. The Birmingham pool is going to open up and the pool outside Birmingham will also open. Tony said this changes our paradigm. As a community college, our focus is on central Alabama and the businesses here and who we support. Now we need to produce students who are capable of matching or exceeding the capabilities of people outside the Birmingham area to meet the demand. This will be an interesting future.

**Web Development**

Tony said over the past two years he has been an instructor and advisor for Web Technology. In the past few months, he has pulled data on the trends for enrollment in this area. It turns out that new enrollment and total enrollment have been down trending for 15 years. It is to a point where it is really testing as to whether the program can stay viable. He is pushing through some changes in the next curriculum committee to try to revise how we approach web development and bring everything up to current standards. We will see how this attracts the kind of attention and students for the next year or two so we can build upon this. We have always been focused strictly on “client side” of web development. He would like to see us move toward a full stack development in the future but first have to maintain a viable program. That’s where we are right now while waiting on the curriculum committee to approve changes. Linda asked for comments on Tony’s information on web development. Josh said that is mainly what he manages. React, JAVA script frameworks, these are libraries based off React – they also use API development- for his company is C # there are others that students need to know, definitely RESTful endpoints is a very big thing they need to know if you could wrap that in there. It all goes back to AWS stuff too. We look for strong JAVA script library knowledge and RESTful endpoints knowledge. Carlos said at his company they follow another flavor of React called Polymer, but it is very much the same and Josh’s point is very important. Tracy said he agrees as well. He said there is definitely a niche for client-side desktop for certain type functions but almost everything we do is web development.

Linda ended the meeting by saying how much she appreciates the committee’s input. Thanking them for giving us knowledge of what we need to do as a CIS department to be on top of the trends and helping our students get better jobs in the market.

Tony posed a follow up question at the end of the meeting… If “all development is web development” (as said by someone on the committee) and in the event that web technology is not a separate option, should we retain it as a core part of the programming option. Josh said that is pretty much all they do now.

The meeting concluded at 10:40 a.m.

Respectfully Submitted by: Approved:

Melanie Cox, Office Manager Linda Dobyns, Program Coordinator

Distribution: All committee members hosted on the internet.