Minutes

Committee Name: Merced College ICT, CS and Business Advisory Committee Meeting Spring 2020

Date: January 14, 2021, 3:00 pm - 4:30 pm

Location: Zoom Meeting, Here is a the Recorded Zoom Meeting

Attendees: There were 18 people in attendance

Kathy Kanemoto, Merced College, Coordinator and Professor of CS and CAHSI member, presented CS and ICT

Annette Haugen, Merced College, Coordinator and Professor of Business, presented Business

Jonae Pistoressi, Merced College, Coordinator and Professor of The Well Being Institute, presented The Well Being Institute

Bhrigu Celly, Merced College, Professor of CS

Svetla Gargova, Merced College, Coordinator and Professor of Engineering

Bryan Tassey, Merced College, Dean of Career Technical Education (CTE)

Doug Kain, Merced College, Dean of Science, Math and Engineering

Elaine Keeley, Merced City School District Director of Curriculum, Instruction and Professional Development

Alisson Ross, Merced College CS student

Eric Price, Merced College CS student

Dr. Erin Hestir, UC Merced, Associate Professor, Environmental Engineering

Dr. Reza Ehsani, UC Merced, Professor, Mechanical Engineering

Dr. Megan Thomas, Stanislaus State, Professor and Co-Chair, Computer Science and CAHSI member

Dr. Matin Pirouz, Fresno State, Professor of Computer Science and CAHSI member

Dr. Martin Ceberio, University Texas El Paso, Professor of Computer Science and CAHSI member

John Neil, Google, Engineer

Mitch McKinnon, Google, Program Manager Engineering Education Team

Lily Lee-Jones, Atwater High School, CS Instructor

Diana Starn, Chowchilla High School, CS Instructor

Participants who watched the recording and responded via email:

1. **Introductions**
   Meeting called to order at 3:00 pm by Kathy Kanemoto

   Went through the agenda which was to go through the new ICT degree and classes and then move onto Business and the Well Being Institute. Explained the purpose of advisories is to receive feedback and a vote from members regarding the new ICT AS Degree, and 4 new Certificates. Also, explained that we would appreciate feedback on our Business, CS and Well Being Institute classes and degrees.

2. **About Merced College and the CS Department**
   Used an informational graphic to show the CS pathways that we are creating at Merced College through the Computer Science department.

   A little background on Merced College and the CS department:

   https://cspathways.us/hs.html

   We also have websites that highlight some of the things we are doing to create Computational Science pathways for our students:

   https://cspathways.us/

   http://stem4me.com/

   https://cspathways.us/news/

3. **Our CS Program Learning Outcomes**
   Went through the CS Program Learning Outcomes and Goals and how they relate to the ICT Degree and Certificated Pathways.
   A. Increase Enrollment
   B. Continue to Grow our Student Success Number
   C. Get Students Internships and Jobs in the CS Industry
   D. Have more students graduate with a degree or certificate
   E. Up our Hispanic and Female Computer Science graduates and enrollment and success in our classes.
   F. Create more pathways for our Drone Technology classes. Including an Ag and Photography Path.
   G. Create and implement the ICT transfer AS-T degree.
   H. Make more of our classes online, and up the success rate in these classes.

4. **Explain our relationship with Alliances like CAHSI**
   We are a member of CAHSI; Computing Alliance of Hispanic Serving Institutions, which provides a network of other CS instructors that assists with broadening participation in CS, our biggest goal, https://cahsi.utep.edu/
5. **Explain our current CS Degree**
   Showed our current CS Degree requirements and where it is located in the MC catalog:
   MC catalog 2020

6. **Went over the reasons we are making a ICT Degree and Certificates**
   There are no prerequisites to the beginning ICT classes and these are meant to attract students with different interests other than Computer Science. We are also mirroring these courses as non-credit courses, so as to attract the non-traditional student, and get them a pathway of learning Computer Technology. The classes are meant to expose students to project based learning centered around computer technology networking, IT support Specialist, System Administration, and Cyber-Security. Another purpose of these classes embraces utilizing Computational Science to solve problems. Thereby, the Computer Technology pathways are also designed to give students an intro to using Computational Science and can lead the students down a Computational Science pathway such as Computer Science, Engineering, or more Specialized Information Communication Technology. Jobs in these sectors are also varied and in high demand. If the student does not choose to get these degrees, the student still benefits in lifelong learning and understanding computers.

   Here is an informational graphic on this Computational Science pathway:
   https://app.lucidchart.com/invitations/accept/141e0993-3550-4343-bec7-38caae29d8b4

7. **Went over an overview of the new ICT Pathway**
   There are no prerequisites to the beginning ICT classes and these are meant to attract students with different interests other than Computer Science.

   The classes are meant to train students to work in 3 areas of study:
   - *IT Support Specialist*
   - *Networking Specialist*
   - *Cyber Security Professional*

   Jobs in these areas are set to grow in our area.
   https://www.bls.gov/ooh/computer-and-information-technology/home.htm

8. **Overview of the Drone Technology Certificate**
   Went over the classes and curriculum that are a part of the ICT Certificates and Degree in table format and as a flow chart using a lucid chart graphic. There are 22 new classes that are being proposed that are all a c-id ITIS descriptor, which means they are standardized classes. Went over the Qwiklabs and CISCO learning modules that can be used to teach the classes. Stepped through the 3 different parts of the degree; the core 4 courses, the 2 classes from the ICT electives, and the 1 math class that can be chosen.

   Here is a graphic showing the classes required for the Certificate:
   https://lucid.app/lucidchart/invitations/accept/960b8f88-4eec-46f2-b62d-6f0af61a0c6d

9. **Achievable Industry Certificates**
   Went over 3 pathways that students can take to get 3 different kinds of Industry Certificates; The Google IT Support Specialist, Implementing and Administering CISCO solutions, and 7 different CompTIA certificates. Used a graphic to talk about and explain the needed classes that

are required for students to be able to be successful in getting these Industry Certificates. Explained how some of the classes are the same, and students could move from one pathway to another by taking an extra classes.

Here is the link to the lucidchart graphic that was used:
https://lucid.app/lucidchart/invitations/accept/f5056464-e079-4b3c-bd74-70b1c85e7f88

10. Overview of the ICT Certificates

Went over the classes and curriculum that are a part of the 4 new Merced College ICT Certificates; Networking Professional, Systems Administrator, Computer Systems Professional, and Security Professional. Used another lucidchart flowchart to show the classes needed for the 4 new certificates. Showed how some of the classes are the same and how a student could move from one certificated pathway to another one.

Here is a graphic showing the classes required for the Certificate:
https://lucid.app/lucidchart/invitations/accept/04485c29-3e58-497f-9075-5c77a03b3051

11. Went through why students would get a ICT Degree or Certificate

Went through some of the reasons students would want to get the ICT Degree and Certificates and benefits of the Certificate, as well as asking for suggestions

Some benefits to the student who gets a ICT Degree and Certificate receives:

- *preparation for other Computational Science classes, and research.*
- *lifelong learning and training to enter the workforce in a Drone Technology field.*
- *learns how to become a Certificated Computer Tech Specialist which enables them to get a computer related job with decent pay*
- *Will be able to continue learning through more classes, and achieve more success with new skills, certificates, degrees, and raises or promotions.*
- *students are introduced to Computational Science and a STEM pathway.*
- *how to choose the correct technology to solve a problem, and how to solve that problem.*

In the future:

- *The ICT classes can transfer to the 4 year schools...*
- *Can be used to...*

12. Asked the audience to comment on 2 other important topics

- *We plan on creating a new department name called "Computer Technology"; this will house the ICT, CS, and Drone Tech Degrees, Certificates and classes.*
- *Taking some of the Certificated Exams is not free (such as CCNA); suggestions on sponsorship or donations to help students take these exams.*

13. Opened up meeting for participant comments and suggestions

Asked all of the participants their thoughts, suggestions, critiques and approval of the Degrees and Certificates. Feedback and suggestions are listed at the end of this doc.

14. **Voted on approving the Drone Technology and Drone Media Certificates**

Bryan Tassey asked Board Members if they agree with creating the Drone Technology and Drone Media Certificates at Merced College as they were presented, it was voted on and approved

i. *Bryan Tassey motioned to approve the ICT Certificate Pathways as shown on the slide*

ii. *Doug Kain seconded*

iii. *Motion passes unanimously*

15. **Intro to Business Division Degrees**

Went over the purpose of having this meeting is to have open discussion about what the classes and programs offered through the Business Division, and seek alignment with the needs of our employers and community members.

16. **Went over the other Degrees in the Business Division**

Went over the other certificate and degree programs in our area, their purpose and objectives, and jobs that are available to those receiving these degrees and certificates:

- *Accounting, AA and Certificate*
- *Administrative Office Management & Virtual Office, AA and Certificate*
- *Business Administration, AA and Certificate*
- *Entrepreneurship, AA and Certificate*
- *Marketing, AA and Certificate*
- *Real Estate, Certificate*

17. **Went over The Wellness Institute**

Went over the purpose of the Wellness Institute, how all of our students could benefit from these classes, and the 5 new classes that are being offered at the Wellness Institute:

- *Foundations of Well-Being in the Workplace*
- *Building Resilience*
- *Fuel Your Body for Success*
- *The Science of Happiness*
- *Finding your purpose and leading with strengths*

18. **Adjournment**

Meeting adjourned at 4:18 pm by Kathy Kanemoto

Meeting Chair: Kathy Kanemoto, Annette Haugen and Jonae Pistoressi

Recorder: Zoom, Here is a the Recorded Zoom Meeting

Here are a link to the slide decks that were used for the presentation during the meeting:

ICT and CS: https://docs.google.com/presentation/d/1995TIlZB9dBCRvGJj9nDOTxXr0EoP2UlMhulgyZp3LY/edit?usp=sharing
Business: https://drive.google.com/file/d/1FsvtZPrK1LmG5OGQW5Aj6WX0PV3PMgqc/view?usp=sharing
The Well Being Institute: https://drive.google.com/file/d/1HthkNfmOjP9Gf3ofHCTDUIn1_jEG7p1b/view?usp=sharing

List of Comments and Suggestions for ICT Pathway - via meeting:

- Erin Hestir commented on there being 2 classes with the same c-id descriptor ITIS 155 - CPSC-45C Systems and Network Administration (3) and CPSC-12 Windows System Administration (3). Asked why this is and explained that these classes are the same SLOs, so students do learn the same content. They are different in that they learn different OS's, one uses Linux and the other Windows.

  John Neil also brought up the point that the system administrators he has hired "cannot claim both" OS system knowledge - it either needs to be Linux or Windows.

  It was suggested that we have an admin track to give them a focus that's either Windows or Linux based. So separate Linux and Windows tracks for the sets of classes. We are looking into this and are contemplating making a Windows and Linux specialized Certificate, which will be proposed in the future. This is important because someone cannot be an expert in both because it takes experience and years of work to really be good at just one of the OS centered technologies. When we start implementing the classes it will be important that we choose a track for the classes to be taught in and keep this the same for the cohorts of students.

  This is a very important point and we will discuss this more in putting this curriculum through. An option would be to get rid of the "extra" class with the same c-id descriptor. And instead make sure that cohorts of students who are taking these classes are choosing either Linux OR Windows to do all of the curriculum in, thereby becoming an expert in only one of the OS's. We could run a Linux cohort and then Windows cohort.

- John Neil from Google commented that it is very important to teach students the "why is this error showing up" and make sure students not only learn theory but how to solve problems. Kanemoto agreed this is very important and mentioned that the classes are project based learning, and that it will need to be important that this element of problem solving is embedded in the classes. We are making sure all classes have this problem solving element in at least one SLO for the class, and that it is part of all of the classes' Learning Objectives. In choosing the curriculum for the classes it was mentioned that we would use standardized learning solutions like Google Qwiklabs and CISCO modules, which do use problem solving scenarios in the curriculum.

- Martine Cebrio brought up the important point that the students would take "extra" classes for the certificates, and this would be very unlikely at her school or UTEP. She asked about the motivation that would make a student want to take the extra classes. We explained that MC classes are cheap, and actually free for the first 2 years. Also, that some students will be taking these classes not to transfer but to up their skill sets and retraining. We feel that students will take the extra classes. It will be important to keep track of the number and type of classes each student takes and look at this data for any trends or problems.

- It was suggested that we add a list of possible jobs that students could achieve if they received a certain certificate. This was a great suggestion and the visuals are updated with this info.

- We had a comment from Diana Starn who teaches CS at Chowchilla HS "I have a lot of students that are not technically CSU UC bound. And so I do see a lot of value and having these certificates or specific programs….Coming from my perspective and the population. I'm working in Chowchilla I definitely see a lot of value in this". She also brought up the point that students could achieve these certificates and get a good job in the computer tech field, and then still continue their education.

- Elaine Keeley from Merced City School District commented " We do have a seventh, eighth career exploration for our college career readiness. We are going to be an avid district and very focused on this." This is very important, and it will be very important in the future for us at colleges to work with these 7th and 8th grade schools to give them career information about these Computer Technology pathways so that they can be introduced in the Junior High Schools.

- Mitch McKinnon from Google mentioned "this is very exciting to see, I am excited to see the inclusion of some of the Google Certifications programmed into this... We have new certificate programs we're actually working on. I think that emphasizes how valuable that those can be seen in the industry."

- Another very important point that Mitch McKinnon brought up is the transferability of these classes to the 4 years schools. Kanemoto explained that this is a problem, and that many of the classes even though they are transferable they probably do not have a class at the 4 year school to articulate to. So it will be important in the future to promote these classes being made at a 4 year school, or for the classes to be transferred in some other way such as credit at the 4 year school in some other aspect of their degree.

- Bryan Tassey brought up the point of offering the classes fully online. John Neil responded with “I mean all of these could be done online only, I think the things that we've all been finding is that online-only has two pretty significant limitations, not the least of which is that it limits and inhibits inter-student interactions. Because again, once they get a job keeping that job means they have to be able to work with others to solve these problems and work on problems that take more than one person to solve.” So it is going to be very important for us to make these classes interactive and include student group work on projects. This can be written into the curriculum as group projects.

- A great suggestion by John Neil that we create a Machine Learning Pathway where students could set up a “Machine Learning cluster, but being able to set those up and manage them and understand how they operate and what are their requirements is kind of over and above what is typically the case for standard Business or enterprise computer pathway that is specialized in learning cloud computing technologies.” We think this is a great idea and are planning a ML Cloud computing set of classes in the next phase of our curriculum development.

- Our 2 students who attended the meeting agreed that these were really exciting pathways that students would be interested in completing. Alisson Ross said “I think this is great because this will give Students, a little bit of like leverage like some people have already mentioned some students can continue doing that computer science, engineering path and also be taking this on the side….it just gives a lot of flexibility and I really like it.” Eric Price commented via email “the certificates give returning students or adult students who may not be able to do long term degrees more options for short term employment paths.”

- Dean Kain brought up the common problem of staffing classes like this, and asked where we would be able to find professors for these classes. Kanemoto mentioned that we would reach out to the graduated students, and continue marketing our teaching positions. It was discussed that with the new Electrical Ed Professor position opening up that it is being considered to hire someone full-time to teach these classes, as well as hiring part-time teachers to teach the classes. It was also mentioned that many of the classes are being considered for dual enrollment and will be able to be taught at the High Schools.

List of Comments and Suggestions for ICT Pathway - via email:

- From Mitch McKinnon, Google: From an industry perspective, I do want to mention that there has been increasing interest in the field of data science. Though many "data scientist" roles in industry do require advanced degrees, the skills in that field are broadly applicable at various levels and across a variety of roles. Whether it's analyzing data in a high-value advertising account, managing the large amount of data associated with videos on Youtube, or generally preparing data for machine learning algorithms, there are quite a few opportunities for those who have a skill set that includes working with data. Our team previously partnered with Runestone Academy on creating the How to Think Like a Data Scientist interactive text (which has an instructor's guide available to those teaching). In addition, since Machine Learning was mentioned in the call, I wanted to share that our team has built out machine learning course materials in the past and they're hosted on Github here. The instructor's guide has an overview of the materials.
- From Eric Price, Merced College Student: It is great that the certificates give returning students or adult students who may not be able to do long term degrees more options for short term employment paths. When i came through the department of rehabilitation the only real option they presented was the Cisco certification.

List of comments from the chat in zoom - I added some explanations where things might be confusing:

00:18:14 Jonae: great visuals, Kathy!

00:29:02 Erin Hestir: **Are CPSC 12 and CPSC 45C needed for the CompTIA Server? Or it it an either/or**
Explained that these classes are the same SLOs, so students do learn the same content. They are different in that they learn different OS’s, one uses Linux and the other Windows.

00:34:18 Megan Thomas: Both operating systems have stayed very popular for 30-plus years…

00:41:25 Bryan Tassey: Some questions to ask yourself …… Are these the types of classes that students need to get a job?

00:41:51 Bryan Tassey: Do students need this many certificates?

00:42:08 Bryan Tassey: Are we missing anything that students need?

00:42:56 Erin Hestir: I can see the value of the networking, sys admin and security certificates. **What’s the “pitch” or value of the Computer Systems certificate? Why would someone hire me if I had that certificate?**
Was suggested to put jobs that students could apply for when they achieve these certificates; this was implemented on the graphics after the meeting.

00:46:07 Annette Haugen: **And what classes/certificates that we may not offer yet, could be valuable to your industry? What skills does the future workforce need?**
Was suggested by John Neil and others that we have a Machine Learning Certificate in the future.

00:47:09 eric price: as a disabled student working with the department of rehabilitation I find that these certificates offer a wider range of short term options where before it was only the cisco network programs offered through DOR
00:50:37 Bryan Tassey: Perfect Erin
00:54:24 Erin Hestir: This is very exciting Kathy and Bhrigu.
00:55:18 Bryan Tassey: Perfect. Very good comments and I agree
00:56:07 Megan Thomas: **Computer science is something youngsters may grow to love, rather than start out loving. "I will just get a certificate" can be a way for a youngster to start… college can come later.**
00:56:37 Bryan Tassey: Thanks Megan. I agree
00:56:44 Martine Ceberio: Great point Megan! I agree with you. That's a good hook.
00:56:49 Erin Hestir: **UC Merced OIT hires a lot of students under work study and undergraduate employment services - so these certificates are also useful for the transfer-bound students as well - a couple extra classes can help them with on-campus employment when they transfer.**
00:58:27 Bryan Tassey: Thank you for your input and support Mitch.
01:00:22 Mitch McKinnon: **Definitely agree with John's point about machine learning and working with data more generally.**
01:08:05 Erin Hestir: **Have you considered tapping into the local graduate programs - Masters and PhD students from UC Merced, Stan State, Fresno may pick up a course or two.**
This was suggested after it was asked about who would teach the classes and where we could find qualified individuals to teach these classes.
01:09:38 Megan Thomas: Stan State has tried to tap graduate programs… those students have a lot of options. (You might have more luck because UCMerced is physically closer.)
01:10:28 Erin Hestir: UCM has a hard time recruiting too - so many jobs out there!
01:11:57 Bryan Tassey: **We are good on votes and the motion passes. Thank you for your participation!!**
01:17:00 Bryan Tassey: And home inspections (roof)
01:18:06 Annette Haugen: Yes!
01:18:27 Erin Hestir: This is great. Thank you for all of the exciting programming you are standing up for the community and our workforce. I agree with the short=-format certificates. A great model for ICT, Real Estate and beyond.
01:23:25 Martine Ceberio: Thanks Kathy! The programs are really exciting! (and well presented)
01:23:38 Bryan Tassey: Thank you for your time, participation, and support!
01:23:45 Annette Haugen: We appreciate your attendance and support!
01:23:51 Mitch McKinnon: Thanks, Kathy! This was great. I'll look forward to sharing any additional thoughts that come to mind after the meeting.
01:24:25 Martine Ceberio: Thanks everyone for putting this together!
01:24:29 eric price: thanks kathy
01:24:33 Matin Pirouz: have a great weekend