

Mohave Community College

# CIS Program Review 2014

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# CIS Academic Program Review 2013 -2014

Mohave Community College Mission Statement:

*The mission of Mohave Community College is to be a learning-centered college, serving all constituencies, inspiring excellence through innovative learning methodologies and empowering students to succeed.*

CIS/CS Programs Mission Statement:

*The Computer Information Systems and Computer Science programs are designed to prepare students to have the skills, the competencies, and the knowledge to use programming and information systems; pursue professional careers in technology; and complete transfer pathways in these areas with in-state universities and other university partners.*

## Program Goals and Objectives for 2014-16

- Continue to increase enrollment in CIS programs by facilitating high school student transfer and JTED partnerships
- Update CIS certificate Systems Support and Security and degree Network Support & Information Security to include Cyber Security competencies
- Continue OER implementation and development
- Award students competency-based equivalency credits for CIS courses that have industry certification exams
- Explore program opportunities to implement a Mobile App course in CIS or CS

## Data

The CIS data is challenging to review this period as we have included the HIT program which encompasses both technology and medical classes and we are only in our first term for this program (please see Appendix A). However, early results prove to be very positive with many students entering the program, which, from the technology side, resulted in the addition of only one course; all other CIS courses in the program already existed. As of the fall of 2014, 45 students have declared HIT as their program of study.

Other CIS programs are being discussed and researched including Cyber Security and Mobile Apps to draw not only degree-seeking individuals but also those who have completed a degree (Associates or Bachelor's) but need to gain additional computer skills to be employable. The CIS program has seen an influx in high school student enrollments to receive certificates and/or degrees and increased participation in the Wave/JTED program which enables students to take CIS (and other courses) for free. New ideas and recruitment opportunities will continue to provide other than traditional avenues for recruitment into CIS programs.

Some of the results of the data are as follows:

- CIS was the top choice for new students seeking degrees when two of our degrees are combined – Systems Administration and Computer Graphics and Web Design with a total of 87 students (not counting Liberal Arts and General Education - please see chart in appendix D).
- Student Enrollments in all CIS programs dropped 17.8% from 2012 to 2013; 49.8% from 2013 to 2014
- Overall, CIS enrollments went from 376 in 2012 to 155 in 2014 or a 58.8% drop, however much of this is reflective of the overall trend of lower enrollment college wide for the 2012-14 period.
- Drop rates in certificate enrollments were much less than the overall drop in enrollment in CIS degree programs falling from 61 in 2012 to 29 in 2014 or a 52% drop.
- CIS ABUS had the lowest drop from 25 in 2012 to 19 in 2014 or a 24% drop, whereas CIS Administration only dropped in enrollment from 119 in 2012 to 68 in 2014 or a 33% drop.
- The largest drops were found in the AAS CIS, AAS Systems Admin, and Certificate of Professional Applications.
- Total CIS declared majors were 539 between 2012 and 2014.
- Outlook is positive as the CIS program has placed a new program called Health Information Technology (HIT) which has had a positive impact on existing CIS course enrollments with 45 students signing up for the program in 2014.
- New programs of study and/or program name changes are being initiated to boost enrollment in existing courses including Cyber Security (currently in the works) and Mobile App Development (to be approached in 2015).
- The CIS data is difficult to analyze due to input variances through the last 3 years. The main issue is how the degree and certificate declarations are coded during input.
- CIS continues strong enrollment in the classes that support other programs such as CIS 110 Introduction to Computer Information Systems and CIS 131 MS Office.

In the Assessment of Student Learning initiative, we had excellent reporting results but did not improve average successful scores from the prior period. The best results for improvement occurred in our online course offerings in CIS 110 where these scores are nearly identical to their on-ground counterparts. This finding was an important development in our program as enrollment increased.

The success rate of the targeted learning outcome, chosen by the CIS faculty, was average at 68%. Average for CIS programs in generally met at the 70% mark. Please see Appendix B for the questions regarding General Education Outcomes.

After reviewing the Assessment of Student Learning Report, please see Appendix B, where the following results were noted:

- Course Outcomes for CIS 110:
- Objective #7: Use Internet browsers and search engines efficiently to find information and define basic website terms, domains, and protocols.

- For CIS 110 Fall 2013, data gathered from 11 different Instructors showed the following results: ground courses (5) averaged 69.4%, whereas the online courses (2) averaged 64%. CIS 110 Spring 2014 resulted in slightly less for ground classes (8) which averaged 66.87%, whereas the online courses (2) averaged slightly higher at 69%. The overall average between fall and spring results was 67.91% and 67.95% respectively. The online student average was very
- Comparable to these averages at 64% and 69% for these two semesters. Strength is that we had a large number of faculty reporting on these courses, however, a weakness is that we would like to see scores of over 70% for both ground and online classes.
- Course Outcomes for CIS 131:
  - Objective #5: Integrate documents and data between programs and determine which program is best suited for the desired outcome or problem solution.
- For CIS 131, no data was captured for the 2012-13 year, however, 11 sections reported assessment results with an average success rate of 66% falling short of our 70% goal; goal was met for reporting but not for successful results (passing or better). Data was difficult to interpret as we have no prior data to compare it to.
- Course Outcome for CIS 143:
  - Objective #2: Design a Website layout incorporating several Web pages using colors, fonts, and graphic formats that are best suited for the Web and the target audience.
- For CIS 143, no data was captured for the 2012-13 year and only one section reported resulting in a higher than average success rate of 78% which is good; however, other comparable sections would have made the data more reliable. Selected questions embedded in the final exam were used to measure the outcomes for this objective.
- Overall averages for CIS were as follows: CIS 110 67.91%, CIS 131 66%, and CIS 143 78%. The CIS department will continue to encourage participation from Instructors in the Learning Assessment project to assure a larger pool of data to pull from as well as strive to get all averages well above the 70% or passing rate.

## SWOC analysis for 2014 program review

### **Strengths:**

- Technology skills are in demand in the local and national work force (Appendix E and Appendix F). The CIS/CS program keeps current with software and equipment to ensure that students who complete the program are up-to-date with the demands of the industry.
- The addition of a full time CIS resident faculty on the Lake Havasu campus has significantly increased the presence of the CIS/Computer Science program. Outreach to high school students, as well as student driven Computer Club participation, is now strong on all three campuses.
- CIS 120 (Introduction to programming) enrollment has increased significantly in the past two years. This is mainly due to the addition of degrees in the high demand fields of Computer Science and Healthcare Information Technology. CIS 120 can be considered a

fairly indicative class in gauging the viability of the CIS/CS program as a whole. CIS 120 is a required course in virtually all of the CIS/CS degrees.

- The CIS/CS program has grown in profitability (over 138K in the black, up from about 129K - nearly 7 % increase). Overall enrollment is strong as well. When totaling enrollment numbers, CIS/CS degrees are the number one choice of new students (Appendix I: New Student's Selection of Major Emphasis from Student Success Initiatives Update 2012/13 prepared by Ana Masterson, Dean of Students, accessed 10/9/14 [http://www.mohave.edu/documents/Admin/student\\_success\\_initiatives\\_update\\_2012-13.pdf](http://www.mohave.edu/documents/Admin/student_success_initiatives_update_2012-13.pdf) pages 22- 23)

### **Weaknesses:**

- Technological uniformity is not present throughout CIS classrooms. Though there is a 500 building on all three southern campuses, the availability of classroom space (number of classrooms open to CIS classes), classroom technology (SmartBoards only in the 500 building on the Kingman campus), and vitality of computers in classrooms (thin-client computers in different rooms in different campuses and are very undesired by faculty), varies from campus to campus. This presents issues delivering curriculum, room scheduling conflicts, and affects student enrollment (students and instructors prefer the best classroom experience possible).

### **Opportunities:**

- The Health Information Technician degree is proving to be a major generator of CIS enrollment. This new degree prepares students for work tech positions in the medical field. Creating a degree that married the Allied health and CIS fields has created a pathway for students wanting a career in two of the hottest fields in the country (BLS - <http://www.bls.gov/ooh/healthcare/medical-records-and-health-information-technicians.htm>)
- Job Outlook, 2012-22: 22% - Much faster than average. The HIT degree should continue to be a generator of enrollment and student interest for years to come.
- The current new emphasis in the IT field is termed "cyber security". The CIS/CS department is currently working on infusing that term and updated competencies in current degrees. By including "cyber security", our degrees and competencies will continue to stay as current as possible.
- The CIS/CS department is also currently working on continuing to strengthen the AS in Computer Science degree. This degree offers a direct pathway from MCC to a Bachelors in Computer Science at UA, ASU, and NAU. By featuring the AGECS as well as Computer Science I and II, this degree is attracting more and more students interested in pursuing a career in the very lucrative field of computer programming.
- The website view.mohave.edu is making it possible for students off campus to be able to access all of MCC's academic software. This can save distance students quite a bit of money on software costs for a variety of courses. The CIS/CS department also has 4 courses utilizing OER options. The department is continuing to pursue more cost-friendly options for our students.

### **Challenges:**

- Of the 60 CIS/Computer Science sections taught in fall 2014 semester, only 18 (30%) of them were taught by Resident faculty. This creates a challenge in managing the delivery of content through many of these courses as well as responsiveness assessment strategies including Writing across Curriculum (WAC) and course outcomes. Online associate faculty responsiveness and on ground associate faculty campus presence has been strong with a few outstanding associate faculty members, but is still considered a challenge.
- Given the relatively low population of residents in Mohave County with degrees in higher education – students may have very low expectations for their education. Teaching in the CTE fields requires the combination of empowering a student looking for a job in the community and a push toward pursuing a higher education degree. The wide range of CIS/CS student expectations in an ever-changing economic climate is a challenge in this field.
- In the evolving field of IT, keeping abreast of emerging technology and whether or not universities and industry will embrace it is a constant challenge. Our transfer pathways to universities and advisory meetings with current employers in the industry are key to the CIS/CS department continuing to meet this challenge.

## Technology Requests and Action Recommendations

1. The CIS program is revising two courses, a certificate, and a degree to include Cyber Security competencies. Each campus will require a stand-alone classroom for student project completion. The computer repair and networking classrooms are already in place but need to be upgraded in Lake Havasu and Bullhead. Kingman's room 502 needs to be transformed from a backup ITV room into a fully functioning lab. All of these rooms need to be upgraded for this degree and certificate to be viable.
2. The CIS program requests SmartBoards for at least one computer classroom in BHC and LHC to improve student achievement. This technology will provide better viewing of software tools and icons which are difficult to see from a distance while using a regular screen and projector. A SmartBoard is installed in the Kingman computer classroom area, but SmartBoards are needed in Bullhead and Lake Havasu computer classrooms.
3. Currently, the CIS program is offering a free OER in CIS 110 Intro to CIS as the Microsoft 2013 Project book. This book was printed at each campus in black and white. The program requests that this resource continue to be printed at no extra cost to the students who are presently being charged at the student rate per page. Matt, Peter, and Andra, the authors of the book, will update and edit this resource for January, 2015 CIS 110 classes. The other courses that have OER implementation for fall 2014 are CIS 138 MS Word by Andra Goldberg, CIS 141 MS PowerPoint by Joy Greco, AF. CIS 241 Ecommerce Technology is planned for an OER resource implementation by Jed Esposito, AF for spring 2015. More courses are being reviewed for possible OER implementation.
4. The Healthcare Information Technician degree has been well received by the community. This degree completion will be monitored for success and adapted as needed to meet the strong demand in the job market. This CIS program will request test fees from the college for the first group of students in CIS 265 to complete the HIT Exam Core #101.

## Post Review Discussion Additions

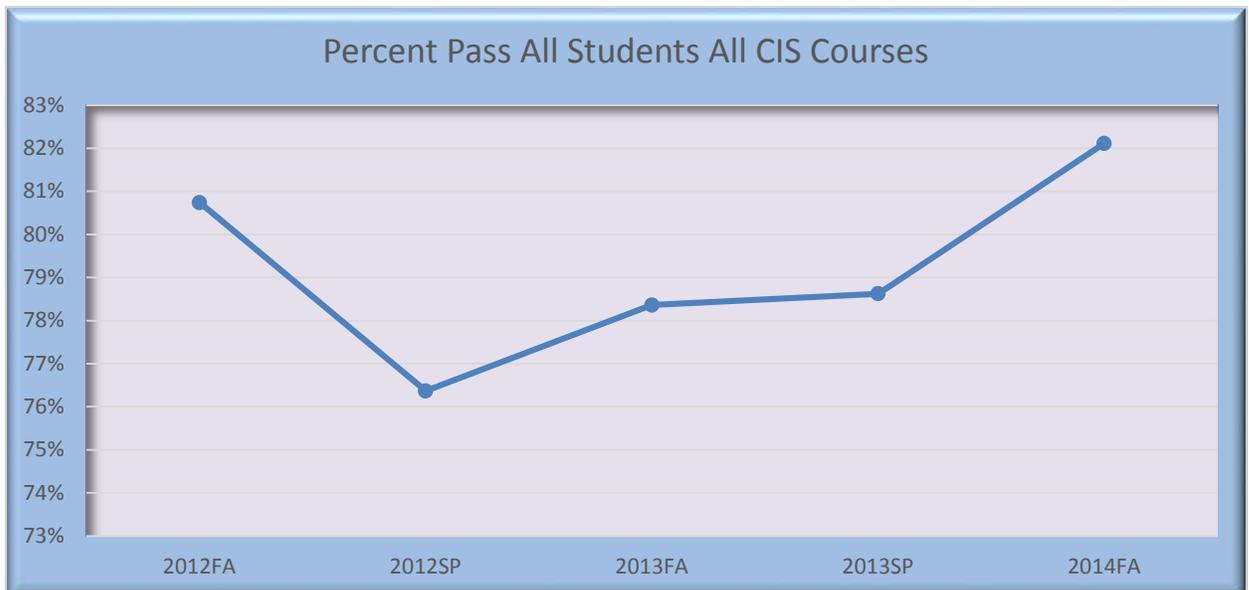
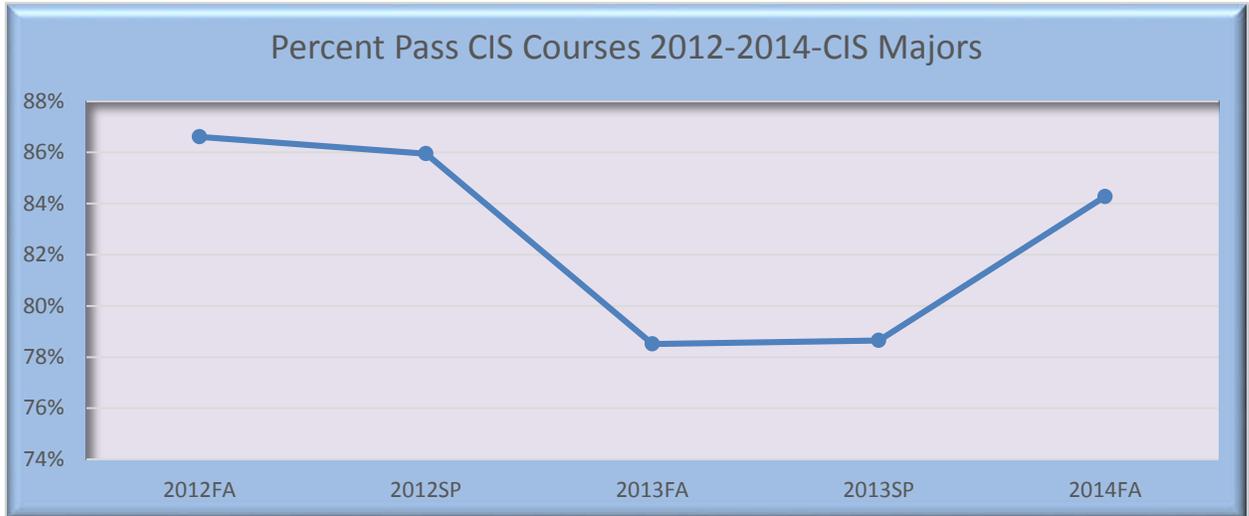
### CIS Marketing Plan

Action	Timeline
Meet with Timothy Kershner to develop ideas and recommendations for promotion of the CIS/CS and HIT programs	Before May 1, 2015
Attend events such as the College and Career Fair - CRUHSD School District on March 4 to promote the CIS program to area High Schools Promote the CIS/CS programs at Senior Days Purchase small Robot to attract students to the CIS/CS presentation (ordered 3/11/15)	Ongoing
Contact CTE Coordinators in Kingman, Bullhead City, and Lake Havasu with the Campus Dean and Jason Gee discuss JTED and any other opportunities for high school students to enroll in MCC classes	Before May 1, 2015
Promote the Cybersecurity Degree and Certificate	Contact PIO for news releases to begin in July
Be available for speaking to community groups	Give contact information to PIO and Campus Deans
Contact Community and Corporate Training for opportunities to promote CIS/CS credit classes when they are presenting non-credit training	Before May 1, 2015
Promote CIS/CS programs with our Advisory Committee by creating a flyer to hand out to their employees	November 2015

# Grade Analysis per CIS Courses

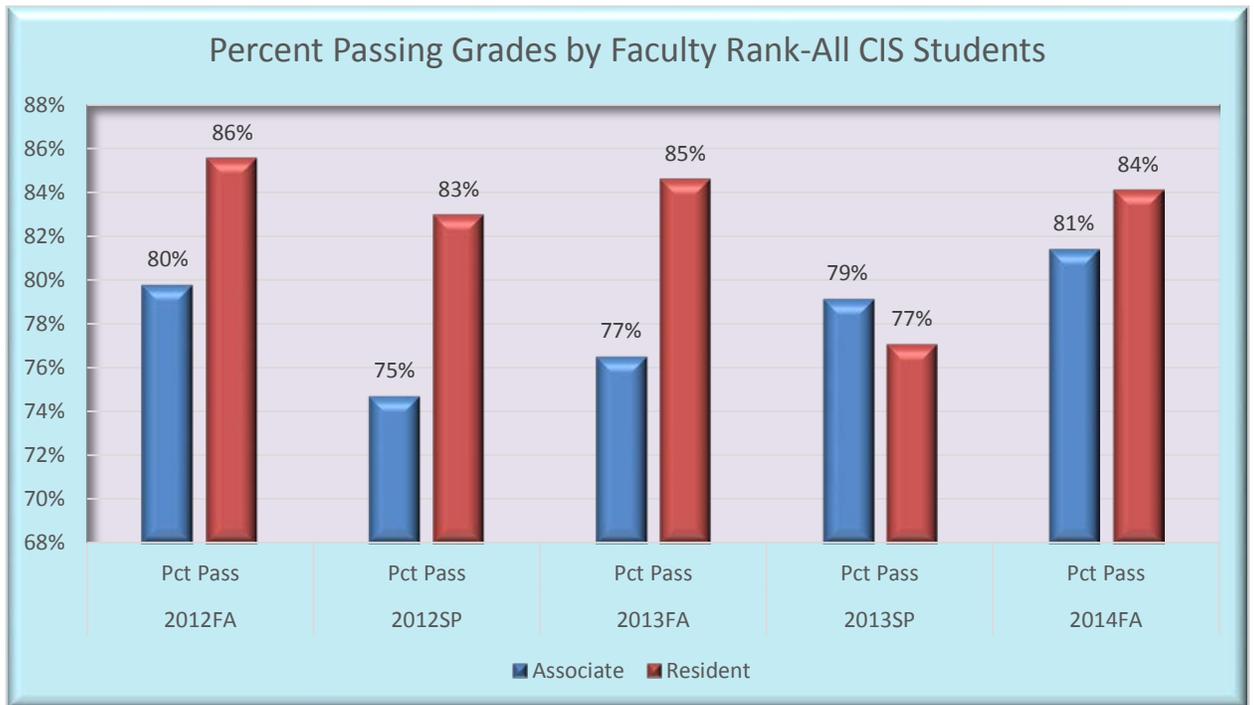
The following data analysis was reviewed by the CIS Faculty:

1. Percent pass of CIS Courses by majors is averaging 82% and the pass rate for students in all CIS courses is averaging 79%. These numbers are very similar and we would expect CIS Majors to have a higher success rate even though the higher level courses are more difficult.



2. The success rate for the last 2 semesters appears to be independent of whether a class is taught by resident or associate faculty – this is good news – currently 81% success for

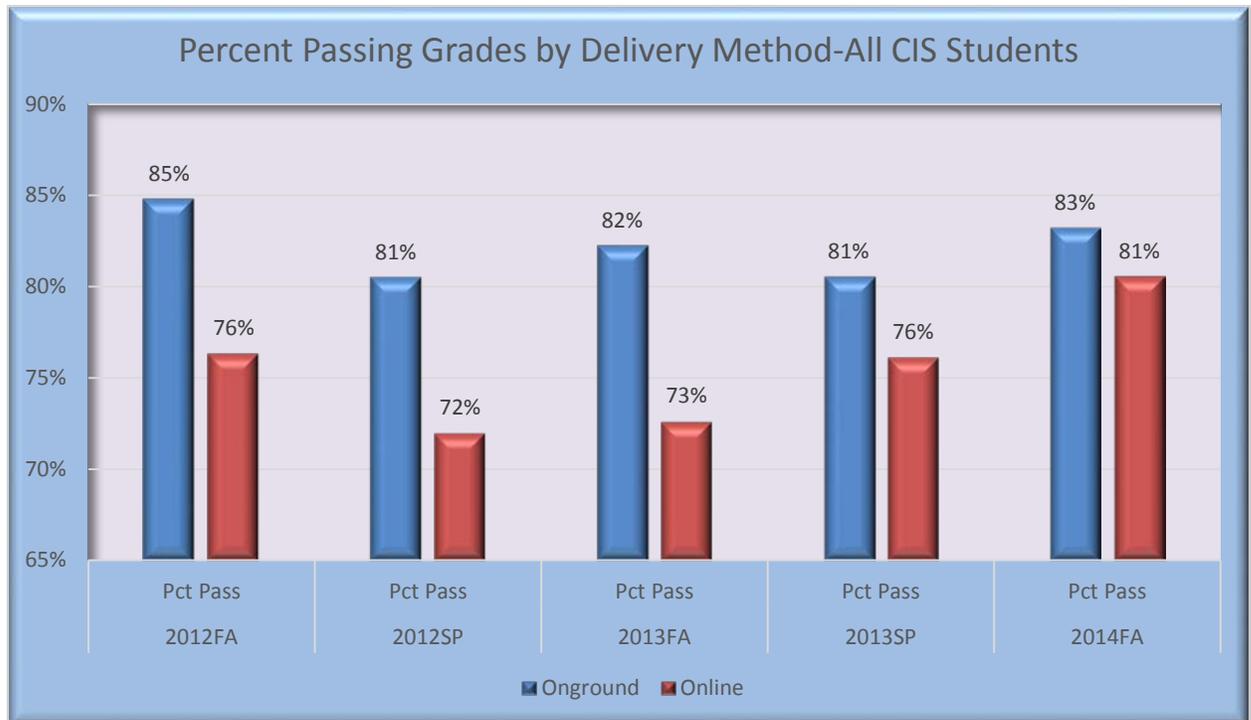
Resident – 84% for AF.



3. A concern that was discovered in the data collection is CIS 143 Web Page Design I. The pass rates are illustrated in the table below. Fall pass rates far exceed spring pass rates. This course is not as successful online which is how it is offered every spring as it is on ground in the fall semesters. We recommend that embedded tutors and work study students be available for this class, especially in the spring semesters. We have recently changed online instructors for CIS 143 this semester and we will monitor the success rate to determine if this change helps with the course success.

Class	2012FAPctPass	2012SPPctPass	2013FAPctPass	2013SPPctPass	2014FAPctPass
CIS 143	75%	57%	76%	46%	94%

4. We are closing the gap for online classes versus on ground – the success rates are nearing the same – 83% on ground versus 81% online.



- The CIS program has increased its success rate over the last year – from 79% to 82%. This increase is within the general college success rates but we would like to achieve increased success rates through the next program review cycle.

## Supporting Data

### Appendix A: CIS Program Data from IR 9/2014

Program	Credential	2012	2013	2014	Total
CIS Administration	AA	0	1	0	1
	AAS	119	109	68	168
	(blank)	95	80	25	152
CIS Emphasis	AA	2	1	1	2
CIS Foundation	CERT	4	3	2	8
CIS Foundations	CERT	2	0	0	2
Computer Info Systems	AA	3	1	1	3
	AAS	57	34	13	67
	ABSSR	2	0	1	3
	ABUS	25	29	19	42
	(blank)	18	23	12	36

Computer Information Systems	AAS	2	1	0	2
	abus	1	0	0	1
	(blank)	22	9	5	23
Professional Applications	cert	55	44	27	72
	(blank)	0	6	3	9
Systems Administration	AAS	58	37	20	69
	(blank)	2	2	0	3
Total		376	309	155	539

## Appendix B: Excerpts from MCC Assessment of Student Learning Report 10/3/14

### Computer Information Systems (CIS)

#### Student Learning Outcomes

The CIS department identified the following outcomes to measure for this academic year:

General Education Outcomes:

Demonstrate effective qualitative reasoning skills.

3.1 Demonstrate non-numerical reasoning to estimate (the range of) possible solutions to some real-world problems, especially in the case of inexact or incomplete data.

3.2 Recognize a cause and effect scenario.

3.3 Reason from particular points of view.

Demonstrate effective quantitative reasoning skills.

3.2 Recognize a cause and effect scenario

Course Outcomes for CIS 110:

#7: Use Internet browsers and search engines efficiently to find information and define basic website terms, domains, and protocols.

Course Outcome for CIS 115:

#1: Identify the names, purpose, and characteristics of system modules including the motherboard, power supply, CPU, memory, storage devices, display devices, and adapter cards.

Course Outcomes for CIS 131:

#5: Integrate documents and data between programs and determine which program is best suited for the desired outcome or problem solution.

Course Outcome for CIS 143:

#2: Design a Website layout incorporating several Web pages using colors, fonts, and graphic formats that are best suited for the Web and the target audience.

Course Outcome for CIS 145:

#3: Use layers to enhance photos with graphic images and change the opacity of layers to create visual effects.

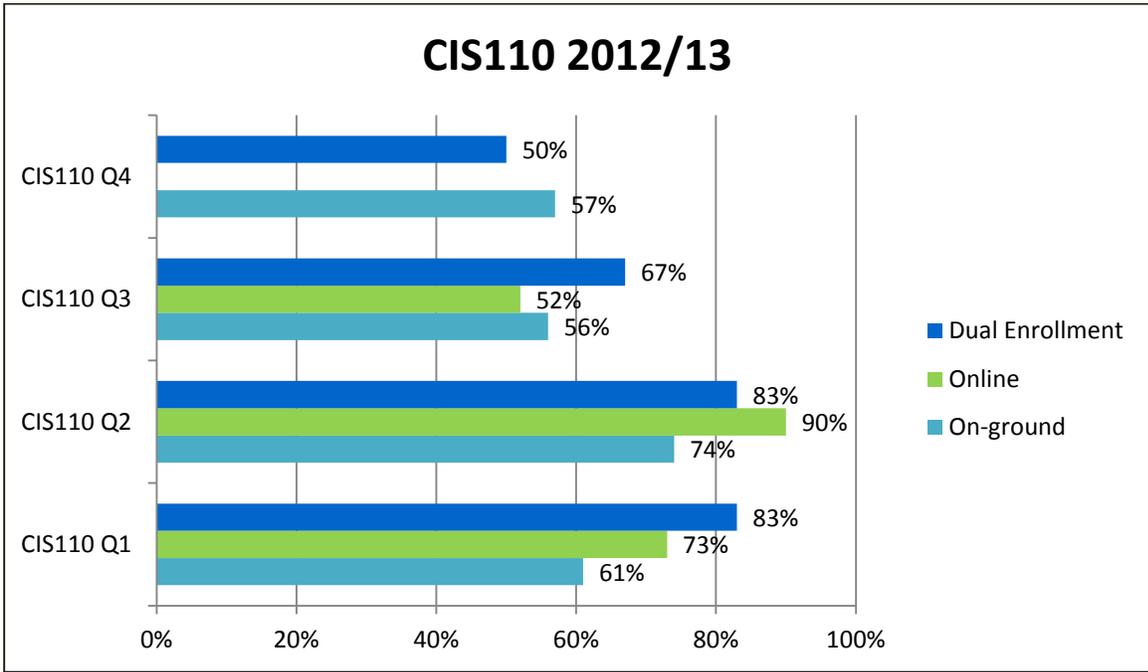
The faculty identified CIS 110 Introduction to Computer Information Systems as the course that would be included in the HLC Academy Writing Across the Curriculum at Mohave.

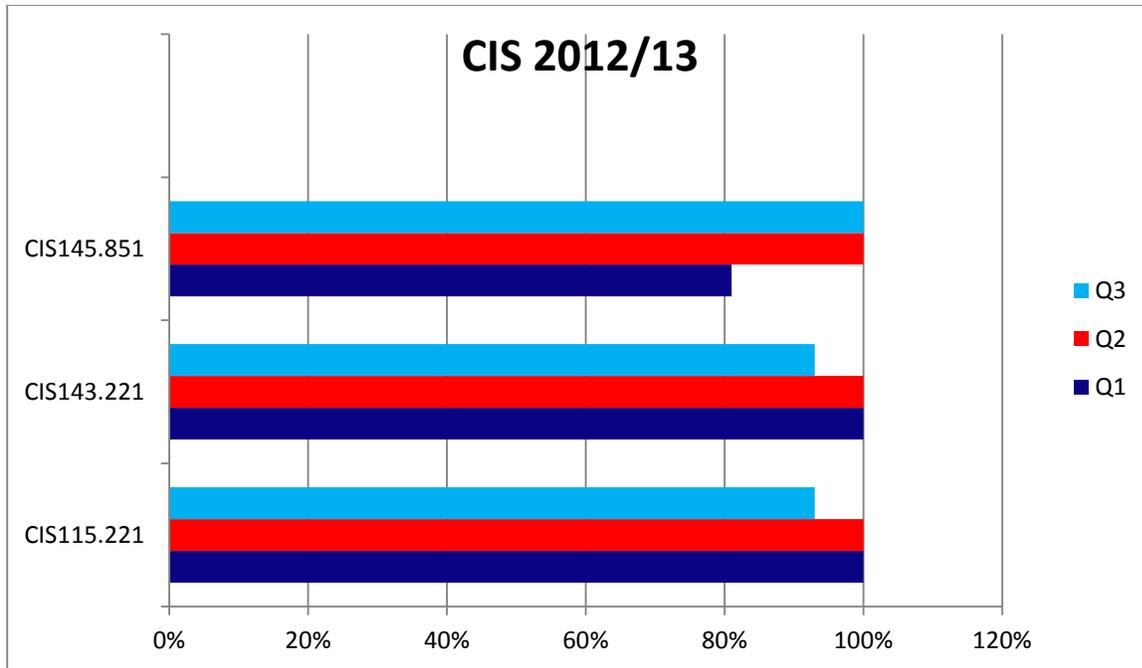
#### Cycle of Learning Assessment Results

COURSE	Q1	Q2	Q3	Q4
CIS110.MHS	83%	83%	67%	50%
CIS110.111	80%	90%	80%	80%
CIS110.112	80%	100%	88%	75%
CIS110.853	76%	90%	52%	
CIS110.131/132	61%	76%	73%	88%
CIS110.221	78%	89%	33%	
COURSE	Q1	Q2	Q3	
CIS115.221	100%	100%	93%	

COURSE	Q1	Q2	Q3
CIS143.221	100%	100%	93%
COURSE	Q1	Q2	Q3
CIS145.851	81%	100%	100%

<b>SPRING 2013</b>				
Course	Q1	Q2	Q3	Q4
CIS110122	77%	77%	46%	
CIS110221	46%	54%	46%	
CIS110111	73%	93%	67%	87%
CIS110112	54%	85%	69%	69%





This goal was: (Met Partially Met Not Met)

Partially Met. We are seeing a slow but steady increase in students achieving desired outcomes in online CIS courses as well as CIS courses as a whole. The CIS department is continuing to focus on informing associate faculty of the importance of submitting assessment data from their courses. The data that we have is very positive – it shows growth in achievement in application based courses, as well as online CIS 110 sections.

**Analysis**

After reviewing the results, the following analysis was derived:

What strengths were displayed through the assessment of the measure?	What weaknesses were displayed through the assessment of the measure?
<p>Application and project based courses such as CIS 143 (Web Design), CIS 145 (Photoshop), and CIS 115 (Computer Repair I) performed very well on the assessment questions. This is due to the hands on nature of those courses, along with outcome driven instruction (teach the student to use the software, then assess how well the student can use the software) or in the case of Computer Repair – teach the student to diagnose a problem, then assess how well the student can solve the problem. We believe this data shows that our method of</p>	<p>As mentioned above, we still have a relatively small sample size. Only a very small portion of the total sections of courses with assessment outcomes submitted data. The CIS department plans to continue to convey the importance of assessing these competencies and submitting the data with associate faculty. I believe for the fall 13 and spring 14 dataset we will have a much higher sample size.</p> <p>There is always room for improvement regarding classroom instructional technology. The CIS department would like to see a more</p>

<p>instruction in these classes is benefitting student achievement.</p> <p>We've also observed higher scores in CIS 110 assessment questions in online sections. I believe this is really due to instructor growth. The CIS department has been stressing the importance of an active online environment for online students (including active discussion forums, immediate feedback to questions, quick turnaround time for grading, and strong overall Angel skills for both the students and instructor). I believe that this assessment data shows growth in these areas.</p> <p>Our program continues to improve in articulating to other colleges and universities. The CSC courses are now equivalent to UA, ASU, and NAU's courses in this area. MCC's Systems Admin and Computer Graphics AAS degree is a transfer pathway with Capella University. The Computer Graphics and Web Design AAS degree has recently articulated with Grand Canyon University.</p>	<p>uniform distribution of available technology across all campuses. SmartBoards and symposiums need to be in at least one 500 classroom on each campus. This will be key as the CIS/CS department looks to include more collaborate based course options in the future. The CIS department has begun working directly with CELT to make this happen.</p>
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### **Recommendations**

Based on the results and analysis, the following recommendations will be made to achieve the desired outcome:

1. Continue working with all associate faculty on the importance of assessment. Our goal will be to have at least 50% of the sections (that include assessment outcomes) submit data.
2. Continue working with online faculty regarding the importance of having an active learning environment for online CIS courses. Enrollment in CIS classes continues to trend toward online sections and the CIS department wants that to be the best experience possible for the student. This also includes scheduling lab based courses (such as CIS 153-Networking, and CIS 115/116-Computer Repair) only in an on-ground format until a true lab/hands on type of environment can be done online. Finally, application courses such as the 15 week Excel, Access, Word, PowerPoint, and Adobe based courses continue to be offered in an alternating on ground/online format. This scheduling change was implemented in fall 2013 and gives students the option to take one of these application heavy courses on ground one semester or online in the other semester of the school year. We have already seen a boost in on ground enrollment and student success in these courses with this change.
3. Continue to update computer classrooms in the 500 buildings on the southern campuses. Currently, we still do not have the same level of hardware in similar classrooms from campus to

campus. The CIS department is working with the CELT program to insure that as many classrooms and campuses have access to powerful new teaching tools including SmartBoards, symposiums, Collaborate ready classrooms, etc.

**Action Plan**

***Assessment Changes***

Restructure Outcome Statement  N/A – outcome statement acceptable	Implemented Changes:  Planned Changes: none at this time
Revise Measurement Approach	Implemented Changes:  Planned Changes: Continue to stress importance of measureable outcome procedure with CIS/CS faculty
Collect and Analyze Additional Data and Information	Implemented Changes:  Planned Changes: Continue to stress importance of prompt submission of assessment data with CIS/CS faculty
Change Methods of Data Collection	Implemented Changes:  Planned Changes: None at this time

***Programmatic Changes***

Revamp Services	Implemented Changes: Assessment data indicates improvement in online section student success. We can attribute this to a continued push for more active online classrooms.  Planned Changes: Continue to discuss the benefits of active classroom environments with online faculty.
Make Technology Related Improvements	Implemented Changes: SmartBoard technology is being used in CIS classes in Kingman (500 building classroom). This

	<p>technology is enhancing content delivery, class participation, and possibly retention as well.</p> <p>Planned Changes: Install and schedule CIS courses <i>with</i> SmartBoard technology on the Bullhead City and Lake Havasu City campuses (in a 500 building classroom).</p> <p>Another planned change that is recommended is student access to software via DreamSparks and a virtual network. This change would enable students to complete their degrees without incurring the high costs of Adobe and Microsoft software purchases.</p>
<p>Make Personnel Related Changes</p>	<p>Implemented Changes: Resident faculty on the Lake Havasu City campus was hired January of 2012. CIS class enrollment has seen steady growth in enrollment, retention, and student success since the addition.</p> <p>Planned Changes: none at this time</p>
<p>Implement Additional Training</p>	<p>Implemented Changes:</p> <p>Planned Changes: none at this time</p>
<p>Add New Service(s) or Program(s)</p>	<p>Implemented Changes: HIT Degree has been added to the CIS program.</p> <p>Planned Changes:</p>
<p>Delete Service(s) or Program(s)</p>	<p>Implemented Changes:</p> <p>Planned Changes: none at this time</p>
<p>Describe any additional resources needed (include budgetary requests)</p>	
<p>Review department budget for Computer Repair and Networking course materials (CIS 115, 116, 153). Ideally, each campus should have access to the same level of technology in their respective classrooms. The CIS/CS department can take an updated inventory of available technology on their campuses (CIS 115, 116, and 153 are not offered online and we would</p>	

like to provide the best experience possible in an on-ground lab setting). Upon completing this review, the CIS/CS will be ready to formally request budgetary needs.

Specific software costs for CIS/CS courses (students and institution) are on the following page.

## Appendix C: Student software needs for CIS classes approximate prices in 2013

Software	Student	MCC
Photoshop	\$319.99 – Student edition - Amazon price	Part of institutional Adobe license License information and cost managed by IT department
Dreamweaver	\$138.99 – Student edition – Amazon price	Part of institutional Adobe license License information and cost managed by IT department
InDesign	\$407.98 - Student edition – Amazon price – not separated from Photoshop for this price	Part of institutional Adobe license License information and cost managed by IT department
CS6 – includes PhotoShop and InDesign but no Dreamweaver	\$407.98 Student edition – Amazon price	Part of institutional Adobe license License information and cost managed by IT department
Adobe offers CS6 at \$19.99 per month – not sure if there's a minimum lease	Lease – \$19.99/month	Part of institutional Adobe license License information and cost managed by IT department
Student pricing for MS Office 2013 - you can use either Office 2013 or Office 2010 for the projects in this class. The "Office Home and Student" version does not contain Access. The Office 365 University is probably the best option for students (lease) - unless you want a copy of Office for longer than 4 years. Use the link below	Lease – \$79.99 for a 4 year lease	Part of Microsoft license License information and cost manage by IT department

<p>this table to access the Microsoft Student Store:</p>		
<p>Microsoft Visio – needed for diagraming CIS 210 and CIS 270</p>	<p>\$299.99 Available with student DreamSpark account (see above section regarding technology improvements)</p>	<p>Part of Microsoft license License information and cost managed by IT department</p>
<p>Microsoft Visual Studio programming software – needed for CIS 200, 204, and 208</p>	<p>\$499.99 Available with student DreamSpark account (see above section regarding technology improvements)</p>	<p>Part of Microsoft license License information and cost managed by IT department</p>

## Appendix D: CIS/CS ATF report

CIS/CS ATF

9/26/14

**CIS Common Core** - MCC's CIS 208 is accepted in the matrix but not accepted by the universities for the degree program - the course is counted as elective credit. ASU absorbed their C# course (182) into a 340 class - leaving us with an elective for our C# class. This change occurred after the 2012-13 matrix.

UA and NAU questioned this change and they are going to research how the change was approved.

ASU - CIS 105 (MCCs CIS 110) Courseware, testing, and exams are now online. They used My IT Lab for their projects and are now creating their own product.

UA - MIS 111 (MCCs CIS 110) created a separate lab for their applications. Mainly focusing on business projects not using any CBT labs. They use case projects in Excel assessing this course. They are using DreamSparks and VM ware.

NAU - no changes for their equivalent to CIS 110.

### **General Roundtable:**

Many colleges reported budget difficulties and changes in administration and organizational structures. While the colleges are seeing lower overall enrollment - the CIS and CS programs are doing well. MCC reported that our new HIT program is being well received. We also informed the group about our new Virtual Desktop to help students use the software that is available at the college for free.

The next meeting will be scheduled with the Business ATF - September 25, 2015. The location will probably be NAU. MCC offered to host the meeting but the group was not in favor of the extra travel time.

**Key Players:** All 3 universities need to adapt their C# requirement in the CIS Common Core Matrix to be more open and flexible since they do not have similar courses to transfer from any of the community colleges.

**Consideration:** Nothing needed for consideration.

**Timeline:** The universities are going to decide how to change this course requirement and report at the Fall ATF.

Articulation: Other:

Courses: CIS 208 Programming in C#

Certificates: Programming and Game Design

Degrees: System Administration

**Additional Comments:** All of the community colleges are affected by this change.

## Appendix E: National Statistics for Computer Occupations - BLS – May 2013 - [http://stats.bls.gov/oes/2013/may/oes\\_nat.htm#b15-0000](http://stats.bls.gov/oes/2013/may/oes_nat.htm#b15-0000)

### Summary:

#### **Network Support and Information Security – Computer Support Specialist**

2012 Median Pay     \$48,900 per year \$23.51 per hour  
Number of Jobs, 2012     722,400  
Job Outlook, 2012-22     17% (Faster than average)  
Employment Change, 2012-22     123,000

#### **Healthcare Information Technician**

2012 Median Pay     \$34,160 per year \$16.42 per hour  
Number of Jobs, 2012     186,300  
Job Outlook, 2012-22     22% (Much faster than average)  
Employment Change, 2012-22     41,100

#### **Computer Graphics and Web Design – Web Designers**

2012 Median Pay     \$62,500 per year \$30.05 per hour  
Number of Jobs, 2012     141,400  
Job Outlook, 2012-22     20% (Faster than average)  
Employment Change, 2012-22     28,500

#### **Computer Science**

2012 Median Pay     \$102,190 per year \$49.13 per hour  
Number of Jobs, 2012     26,700  
Job Outlook, 2012-22     15% (Faster than average)  
Employment Change, 2012-22     4,100

## Appendix F: Arizona BLS Statistics:

[http://stats.bls.gov/oes/2013/may/oes\\_az.htm#b15-0000](http://stats.bls.gov/oes/2013/may/oes_az.htm#b15-0000)

<b>Computer and Mathematical Occupations <a href="#">top</a></b>									
		Employment Estimates				Wage Estimates			
Occupation Code	Occupation Title (click on the occupation title to view an occupational profile)	Employment <a href="#">(1)</a>	Employment RSE <a href="#">(3)</a>	Employment per thousand jobs	Location quotient <a href="#">(9)</a>	Median Hourly	Mean Hourly	Mean Annual <a href="#">(2)</a>	Mean RSE <a href="#">(3)</a>
15-0000	<a href="#">Computer and Mathematical Occupations</a>	60,090	2.4 %	25.386	0.983	\$33.22	\$35.79	\$74,450	2.5 %
15-1111	<a href="#">Computer and Information Research Scientists</a>	280	25.6 %	0.117	0.597	\$48.51	\$49.13	\$102,190	5.1 %
15-1121	<a href="#">Computer Systems Analysts</a>	8,890	7.5 %	3.757	0.963	\$34.97	\$42.21	\$87,790	10.2 %
15-1131	<a href="#">Computer Programmers</a>	6,710	6.8 %	2.836	1.080	\$34.60	\$35.78	\$74,420	2.3 %
15-1132	<a href="#">Software Developers, Applications</a>	6,580	7.4 %	2.781	0.708	\$41.60	\$43.18	\$89,820	2.4 %
15-1133	<a href="#">Software Developers, Systems Software</a>	8,660	4.9 %	3.657	1.227	\$44.69	\$45.81	\$95,280	2.2 %
15-1141	<a href="#">Database Administrators</a>	2,760	4.2 %	1.166	1.424	\$31.40	\$32.81	\$68,230	1.7 %
15-1142	<a href="#">Network and Computer Systems Administrators*</a>	6,570	5.6 %	2.777	1.059	\$31.20	\$32.87	\$68,360	1.8 %
15-1150	<a href="#">Computer Support Specialists</a>	12,280	3.5 %	5.189	1.139	\$21.63	\$23.19	\$48,240	1.7 %
15-1179	<a href="#">Information Security Analysts, Web Developers, and Computer Network Architects</a>	4,020	8.0 %	1.699	0.887	\$31.99	\$33.91	\$70,530	3.4 %

15-1799	<a href="#">Computer Occupations, All Other*</a>	1,740	2.3 %	0.736	0.511	\$35.82	\$35.31	\$73,430	4.5 %
15-2011	<a href="#">Actuaries</a>	320	30.5 %	0.134	0.930	\$34.58	\$37.00	\$76,970	3.4 %
15-2031	<a href="#">Operations Research Analysts</a>	1,060	10.4 %	0.446	0.911	\$29.08	\$31.78	\$66,110	2.3 %
15-2041	<a href="#">Statisticians</a>	200	10.1 %	0.083	0.462	\$27.76	\$29.21	\$60,760	4.2 %

## Appendix G: CIS Course Matrix – 24 month – 2015 – 2017

Revised 9/2014 - Yellow indicates changes from 2014

	<b>B = Bullhead E = Extended Campus K = Kingman L = Havasu N = North</b>									
	<b>Title</b>	<b>FALL14</b>	<b>SPRING15</b>	<b>SUMMER15</b>	<b>FALL15</b>	<b>SPRING16</b>	<b>SUMMER16</b>	<b>FALL16</b>	<b>SPRING17</b>	<b>SUMMER17</b>
<b>CIS</b>										
CIS 110	Intro to Computer Info Systems	BEKL	BEKL	BEKL	BEKL	BEKL	BEKL	BEKL	BEKL	BEKL
CIS 115	A+ Computer Technology Hardware	BKL	K		BKL	K		BKL	K	
CIS 116	A+ Computer Technology Software	K	BKL		K	BKL		K	BKL	
CIS 120	Introduction to Programming	BKL	BKL		BKL	BKL		BKL	BKL	
CIS 125	Basic Game Design & Creation		E			E			E	
CIS 131	Microsoft Office Suite	BEKL	BEKL	BEKL	BEKL	BEKL	BEKL	BEKL	BEKL	BEKL
CIS 135	Microsoft Access Database	BKL	E		BKL	E		BKL	E	
CIS 136	Microsoft Excel Spreadsheets	E	BKL	E	E	BKL	E	E	BKL	E
CIS 138	Microsoft Word	E	E	E	E	E	E	E	E	E
CIS 142	Digital Media (Replaces CIS 140 InDesign beginning Fall 2014)	E	BKL		E	BKL		E	BKL	
CIS 141	Microsoft PowerPoint Presentations	E			E			E		
CIS 143	Webpage Design I	BKL	E		BKL	E		BKL	E	
CIS 145	Photoshop I	BKL	E		BKL	E		BKL	E	
CIS 153	Networking Essentials	BKL	K		BKL	K		BKL	K	
CIS 156	Firewalls & Intrusion Detection	E			E			E		
CIS 200	Programming & Game Development with Visual Basic			E			E			E
CIS 204	Programming & Game Development in C++	E			E			E		
CIS 206	Programming for the Web in JavaScript	E	E		E	E		E	E	
CIS 208	Programming in C#		E			E			E	
CIS 210	Data Base Management & SQL Design		BKLN (Coll)			BKLN (Coll)			BKLN (Coll)	
CIS 241	E-Commerce Technology		E			E			E	
CIS 243	Webpage Design II	E	E	E	E	E	E	E	E	E
CIS 245	Photoshop II		E			E			E	
CIS 253	Network Security		E			E			E	
CIS 261	Computer Support Services									
CIS 265	HIT Capstone Course		E			E			E	
CIS 270	Systems Analysis & Design		E			E			E	
CIS 280	CIS Internship	BKL	BKL		BKL	BKL		BKL	BKL	
<b>CSC</b>										
CSC 110	Computer Science I	E			E			E		
CSC 210	Computer Science II		E			E			E	

## Appendix H: CIS/Business Advisory meeting: November 7, 2014

**CIS/BUS Advisory Board Meeting                      November 7, 2014 12:00-1:00 PM, via ITV**

### **Executive Summary:**

The advisory members supported the proposed changes in the CIS and Business programs. For CIS, the emphasis in Cybersecurity was well received. Business presented the creation of the new Retail Management certificate. The HIT degree has recently been adapted as a Vocation Technology program which will allow more JTED monies to be used for high school students to be able to obtain this degree. The members encouraged both Business and CIS to continue with the internship courses in both these programs. Generally, the businesses and organizations represented are using Office 2013 with very few still using Office 2010, and Windows 7 with some still using Windows XP. None of the groups represented were migrating to Windows 8 in the near future.

New program ideas included CAD courses, advanced SQL courses, programming for databases, and forms development. Mobile Apps development does not appear to be an immediate need for any of the groups represented. Corporate training was also indicated to include Outlook and Gmail training along with security based skills in spotting phishing attempts. Brandon Warner will be following up with several of the attendees in response to their requests.

The CIS and Business programs were pleased with the attendance at this year’s meeting with 11 community members attending (6 – NCK, 2 – LHC, and 3- BHC).

### **Meeting Minutes/NCK Campus**

Bill	Bigelow	Night Manager NCK, CIS Consultant
John	Cawley	Department Chair – CIS/Business via NMC
Christian	Crowder	IT Coordinator
Jason	Gee	Associate Dean
Fred	Gilbert	Dean NCK
Andra	Goldberg	CIS Faculty
Jean	Goujon	Allied Temporary Services
Candace	Hofstadter	Business Faculty
Roger	Jacks	KUSD Superintendent
Jill	Loveless	Dean of Instruction
Jen	Miles	Mohave County Workforce Director and Kingman City Council member
Freddie	Orange	IT Technician
Stephen	Smart	Mohave County Network Administrator
Brandon	Warner	Community and Corporate Training Director
Don	Weide	Director, Instructional Technology
Amy	West	KUSD CTE Coordinator
Jennifer	Woolston	English Faculty

Matt Butcher presented the Computer Science AS degree and the transfer pathways available through ASU, U of A, and NAU. Andra Goldberg presented the Healthcare Information Technician AAS degree and its certification change to Health IT Certification since the CompTIA certification is being retired after December 2014. She noted that MCC currently has 45 students pursuing the HIT AAS degree. Peter Burgess presented the changes in CIS 156 and

CIS 253 along with the Security and Support Certificate and Networking degree to better capture the cybersecurity competencies of this area.

Candace Hofstadter introduced the new Business faculty at the Bullhead campus – Dr. Eric Jones. She discussed the changes in the degrees and certificates in the Business program. A new Retail Management Certificate from WAFB was just approved for the 2015-15 catalog. The Business Internship class – BUE 280 – has had great success and she requested that the businesses represented contact her or Eric if they had any opportunities for the Business students. During the breakout session, Jean Goujon asked if MCC is still posting job opportunities on our website. Jill Loveless was going to check on this possibility and mentioned our recent partnership with Arizona Workforce Connections.

Jen Miles indicated the need for industry certifications whenever possible as tracking is being required for most government sponsored job programs. Jen was pleased to see that the HIT degree had a certification pathway.

Representatives from KUSD, Roger Jacks and Amy West, discussed the dual enrollment and JTED classes that are being provided jointly with MCC and KUSD. Amy asked how many of the courses in the new HIT degree were online and Andra met with her after the meeting to indicate which classes are online and/or on-ground. Amy was concerned that the online classes are sometimes difficult for the high school students to complete as compared to the concurrent enrollment sections.

Roger Jacks mentioned the “Move on when Ready” program at his high school and noted that the dual and concurrent enrollment classes with MCC are a great asset for the high school students. Amy indicated a need for an HIT certificate as a pathway with this new Vocational Technology approved program. Andra noted that the Network Security Certificate that the JTED students are currently taking is part of the HIT degree and this certificate may be the correct pathway for these students.

CAD was mentioned by Bill Bigelow as a possible need for employers in the area. Amy noted that CAD is still being taught at KHS. CAD has been offered previously at MCC as a separate program – not part of CIS and this discussion will continue with Jill as a possible program to be reinstated.

Don Weide proposed more use of 3D printing. Amy mentioned they already have several of these printers and the students really enjoy using them. Andra noted that the Visual Communication program is requesting this type of printer and it definitely is a major area of interest for VC.

**Meeting Minutes/LHC Campus**

Michelle Ravnika Burke	Technical Integration Specialist	LHUSD #1
Amy Whitson	Mohave State Bank (corporate office)	Information Technology Officer
Peter Burgess	CIS Faculty	LHC Campus

Amy Whitson, Mohave State Bank Corporate Office – Currently using a 100% hosted site as no servers or pc’s are in use any more at any of the banks seven locations. They are being hosted by ProNet Solutions in Phoenix, AZ using a Citrix platform as of last December when their conversion took place. Other points of interest as follows:

- Windows Server 2008 in use on hosted servers. A couple of in-house servers, 5 windows XP machines left (everything else Windows 7), many Dumb Terminals, one server for a

few specific applications, not cloud based, rather ProNet based, warranties. No programming, research already established programs. Use Office 2010 (basic programs), not much with Access. Starting to use Fred Pryor seminars for different topics, not just IT. Amy is the only IT person at the bank, managed by ProNet, no additional staff needed in house at this point, level of management is better being a professional management company. Amy showed interest in our Business internship.

Michelle Ravnikar Burke, Lake Havasu Unified School District #1 - manages the technology needs, training, and scheduling of the school district and its employees, teachers, etc. as follows:

- School Bond failed, still many XP computers, would like to take our old computers at MCC if no longer need. No upgrades planned, infrastructure is very old, would need new servers, switches, etc. if going to upgrade. Using BYOD for student trainings, etc. Probably have to work on the phone system. Hired Mac tech through CTE, CTE is buying all the Mac's. Many of the tech's (2 hardware techs and 1 person responsible for uploading software to the state) are going to be retiring. Matt Butcher donated many programming books. Excited about the HIT program. High school is using mobile mac labs and tablets more and more, drawing tablets. Ipad lab for the Medical teacher for the CTE program at the high school.

**Meeting Minutes/BHC Campus**

Nicole Smith – proxy for Chris Barton	Executive Director, Bullhead Chamber of Commerce
Brian Williamson	Bullhead City Police Chief
Heath Barker	Manager of IT at Mohave Electric Cooperative
Jason Gee	Associate Dean
Matt Butcher	CIS Faculty
Joy Greco	CIS Associate Faculty
Eric Jones	Business Faculty
Shawn Bristle	BHC Dean
Lale Cilenti	Science Faculty and Department Chair for Math and Sciences

Matt reported that Office 2010 is still the most popular software with a growing number switching to Office 2013. Windows 7 is the most prevalent OS – MEC does use Windows 8. Soft skills are still at a premium. The group suggested adding more email training using Outlook or Gmail to our curriculum (asked for Microsoft Outlook to be taught in our CIS 131 course). The group expressed a need for applicants skilled in digital marketing and marketing with social media. The group also stated need for GIS courses.

The Police chief explained that police work has gone heavily into the IT field. He wants as many officers as possible to get CIS degrees, or at least take enough courses to become confident with technology. Jason Gee volunteered to meet with directly with Brian Williamson, BHC Police Chief, to work out a mechanism for officers to complete course work (given their sporadic schedules) and potentially work toward more officers obtaining degrees. Brian expressed a desire

for his employees to actually take as many CIS classes as possible, as opposed to corporate outreach training.

Companies did express an interesting hiring folks to design mobile apps, but that was not an overwhelming need as of yet. More focus was on GIS skills, email skills, and overall confidence in using computers.

The groups reconvened and presented their major findings to everyone. Brandon Warner presented the training opportunities available through Community and Corporate Outreach. This training can be tailored to fit company needs in safety, communication, software packages, and any other items needed by area businesses.

The meeting adjourned at 1:00 p.m.

## Appendix I: New Student's Selection of Major Emphasis

from Student Success Initiatives Update 2012/13 prepared by Ana Masterson, Dean of Students, accessed 10/9/14

[http://www.mohave.edu/documents/Admin/student\\_success\\_initiatives\\_update\\_2012-13.pdf](http://www.mohave.edu/documents/Admin/student_success_initiatives_update_2012-13.pdf)  
pages 22- 23

### > New Student's Selection of Major Emphasis

The major emphasis selections for 2012-1013 are displayed in Table 2. The clustering of "general studies" undecided, and Liberal Arts top the list and indicate that many new students have not yet decided on firm academic or career goals. This lack of commitment may be a factor in retention.

Table 2, Top 30 Major Emphasis selected by New Students – 2012-2013

Major	New
General Studies	781
Z-No Degree Listed	448
Liberal Arts	430
Medical Assisting	82
Business Admin.	81
Bus and Entrprnshp	78
Social and Behavioral Science	76
CIS Administration	65
Administration of Justice	64
Education: Elem/Middle School	57
Culinary & Hospitality Mngmnt	52
Accounting	51
Welding Technology	44
Fire Science	43
English	42
Med Assisting: Phlebotomy	40

Major	New
Chem. Depend. Studies	38
Science	37
Med Asst: Insurance Coding	36
Nursing	32
Auto Service Tech	29
HVAC/Refrigeration Tech	26
Non Degree Seeking	25
AGEC-A Arts	25
Art	24
Comp. Graphics & Web Design	22
Engineering	20
Paralegal	20
Auto Collision Repair Tech	19
Heat/Vent/Air Conditioning	19

## Appendix J: CIS Recommendations for Prior Learning Credits of Industry Standards Certifications

Degree/Certificate	Certification	State Code	Credits	MCC Course	Number of years valid
HIT – AAS  Computer Information Systems Admin – AAS  Systems Support Security Certificate  Network Support and Information Security – AAS	A+ Repair		6	CIS 115 & CIS 116	10
Systems Support Security Certificate  Computer Graphics and Web Design – AAS  Professional Applications Certificate (elective)  Network Support and Information Security – AAS  HIT – AAS  Accounting - AAS  Paralegal – AAS	Microsoft Office Specialist – expert exams Word, Excel, Access, & PowerPoint to be a MOS Master Specialist		3	CIS 131	5

Medical Assisting Insurance Coding Certificate					
Business and Entrepreneurship - AAS					
Professional Applications Certificate	Microsoft Office Specialist – Word – Expert exam (2 exams)		3	CIS 138	5
Network Support and Information Security – AAS					
Paralegal – AAS					
Professional Applications Certificate	Microsoft Office Specialist – Access (1 exam)		3	CIS 135	5
Network Support and Information Security – AAS					
Accounting - AAS					
Professional Applications Certificate	Microsoft Office Specialist – Excel exams (2 exams)		3	CIS 136	5
Network Support and Information Security – AAS					
Accounting - AAS					
Business Bookkeeping Certificate					
Business and Entrepreneurship - AAS					

Professional Applications Certificate  Network Support and Information Security – AAS	Microsoft Office Specialist – PowerPoint (1 exam)		3	CIS 141	5
Computer Graphics and web design -AAS  Computer Information Systems Administration – AAS  HIT – AAS  Network Support and Information Security – AAS  Systems Support and Security Certificate	CompTIA Network exam #N110-005		9	CIS 153, CIS 156, and CIS 253	10
Network Support and Information Security – AAS  Computer Graphics and web design Certificate and AAS  Computer Information Systems Administration – AAS	Adobe Certified Associate - Dreamweaver		3	CIS 143	5

Professional Applications Certificate					
Computer Graphics and web design Certificate and AAS	Adobe Certified Associate - Photoshop		3	CIS 145	5
Professional Applications Certificate					