



## **2017 ITC<sup>2</sup> Annual Evaluation Report**

Information Technology – Credentials to Careers (ITC<sup>2</sup>)  
Iowa Western Community College

September 27, 2017

Prepared by



Research Institute for Studies in Education

U.S. Department of Labor  
Trade Adjustment Assistance Community College and Career Training Grant Program  
(TAACCCT)  
Grant No.: TC-25176-13-60-A-19

This material is based upon work supported by  
The U.S. Department of Labor under Grant No. TC-25176-13-60-A-19.

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s)  
and do not necessarily reflect the views of the U.S. Department of Labor.

**Research Institute for Studies in Education**  
**School of Education**  
**Iowa State University**

**Evaluation Team Members:**

Arlene de la Mora, Ph.D., Research Scientist

Elisabeth Callen, Ph.D., Postdoctoral Research Associate

Mari Kemis, M.S., Director

William Abraham, Ph.D., Research Scientist



# Information Technology – Credentials to Careers (ITC<sup>2</sup>)

## Iowa Western Community College

### 2017 ITC<sup>2</sup> Annual Evaluation Report

#### Table of Contents

<b>Table of Contents .....</b>	<b>iv</b>
<b>Executive Summary .....</b>	<b>vi</b>
<b>Introduction.....</b>	<b>1</b>
<b>Implementation of the Information Technology – Credentials to Careers (ITC<sup>2</sup>)</b>	
<b>Program .....</b>	<b>2</b>
Current ITC <sup>2</sup> Programs .....	2
Third Party Evaluator.....	8
<b>Implementation Evaluation: Methodology.....</b>	<b>15</b>
Completion of Priorities, Strategies, and Milestones.....	15
ITC <sup>2</sup> Program Evaluation Surveys.....	15
Interviews.....	18
<b>Implementation Evaluation: Findings .....</b>	<b>19</b>
Completion of Priorities/Milestones .....	19
Summary of ITC <sup>2</sup> Project Evaluation Survey Results .....	27
Interviews/Surveys.....	33
DOL TAACCCT Required Research Questions .....	37
<b>Outcome Evaluation: ITC<sup>2</sup> Program Participants .....</b>	<b>41</b>
<b>Outcomes Evaluation: Methodology .....</b>	<b>46</b>
Comparison of Treatment and Control Groups .....	46
<b>Outcomes Evaluation: Findings .....</b>	<b>48</b>
Treatment and Control Group Participants .....	48
Outcomes Analysis .....	49
Limitations.....	52
<b>Conclusions.....</b>	<b>53</b>
<b>References.....</b>	<b>56</b>

<b>Appendices.....</b>	<b>57</b>
Appendix A: Milestone Completion Evaluation Report: Spring 2017.....	58
Appendix B: Student Survey Evaluation Report: Fall 2014.....	76
Appendix C: Student Survey Evaluation Report: Fall 2015.....	91
Appendix D: Student Survey Evaluation Report: Fall 2016.....	112
Appendix E: Student Survey Evaluation Report: Spring 2014.....	132
Appendix F: Student Survey Evaluation Report: Spring 2015.....	158
Appendix G: Student Survey Evaluation Report: Spring 2016.....	187
Appendix H: Student Survey Evaluation Report: Spring 2017.....	216
Appendix I: Student Internship Survey Evaluation Report: Spring 2017.....	251
Appendix J: Internship Supervisor Survey Evaluation Report: Spring 2017.....	265
Appendix K: Employer Partner Survey Evaluation Report: Fall 2015.....	273
Appendix L: Employer Partner Survey Evaluation Report: Spring 2017.....	286
Appendix M: Faculty Survey Evaluation Report: Spring 2017.....	294
Appendix N: Project Team and Faculty Interview Report: Fall 2014.....	307
Appendix O: Project Team and Faculty Interview Report: Fall 2016.....	314
Appendix P: Project Team Interview Report: Spring 2017.....	319

## **EXECUTIVE SUMMARY**

### **TAACCCT Program Description & Activities**

Iowa Western Community College (IWCC), located in Council Bluffs, Iowa, was founded in 1967. It has several satellite campuses in Atlantic, Iowa; Harlan, Iowa; Shenandoah, Iowa; and Clarinda, Iowa. In response to regional needs to fill Information Technology (IT) jobs with highly skilled and knowledgeable employees and improve recruitment and retention of students in Computer Information Technology (CIT) programs, IWCC, in conjunction with local four-year institutions including University of Nebraska – Omaha and local employers, proposed the development and redesign of IWCC’s CIT programs.

In October, 2013, IWCC was awarded a four-year grant from the U.S. Department of Labor (DOL) Trade Adjustment Assistance Community College Career Training (TAACCCT) Grant Program whose mission is to provide community colleges and other eligible institutions of higher education with funds to develop, expand, and improve education and career training programs in order to prepare program participants for employment in high wage and high skill occupations.

The grant provided IWCC with the opportunity to respond to employer demands for skilled workers by developing and redesigning programs to provide training to students in the application of various Information Technology areas including networking, hardware and software installation, help desk, graphic communications, cloud and virtual infrastructure, and cyber security. While CIT programs provide students with the tools to work in middle skill jobs, the ultimate goal is for the students to continue their education at a four-year institution, obtain a bachelor’s degree, and become highly skilled workers.

Implementation of the Information Technology – Credentials to Careers (ITC<sup>2</sup>) Project has helped increase visibility of the program through regional marketing efforts, increase the number of students enrolling in CIT courses, increase the number of available activities (e.g., Cyber Defense Competition, Nerd Squad), increase the number of available courses and programs, and increase technology and software available to students.

The IWCC CIT program is perfectly situated near several large IT companies located in and around Council Bluffs including Yahoo, PayPal, and Google, and several other large companies that require IT workers.

### **Evaluation Design Summary**

A comprehensive evaluation of the ITC<sup>2</sup> Project required by the U.S. Department of Labor (DOL), consisting of an implementation evaluation and an outcomes evaluation, was led by the Research Institute for Studies in Education (RISE) at Iowa State University. A program-oriented evaluation approach utilizing an a-e-I-o-u framework (Kemmis and Walker, 2000) was used for the implementation evaluation of the ITC<sup>2</sup> Project. This evaluation approach guided how the following key evaluation questions required by the U.S. DOL TAACCCT program were organized:

- How was the particular curriculum selected, used, or created?
- How were programs and program design improved or expanded using grant funds?
- Did the grantees conduct an in-depth assessment of participants' abilities, skills, and interests to select participants into the grant program?
- What contributions did each of the partners (sector board, employers, workforce system, other training providers and educators, philanthropic organizations, etc.) make towards program design, curriculum development, recruitment, training, placement, program management, leveraging resources, commitment to program sustainability?

This approach examines inputs (actions and activities designed to achieve specific goals), intermediate outcomes (immediate and short-term effects), and ultimate outcomes (long-term effects or changes). In assessing the operational strengths and challenges of the project during and following implementation, not only are we considering overall effectiveness, but we also are considering broader impacts, contextual effects related to the organization and project environment, and unexpected results. In particular, we are examining and evaluating implementation activities, key stakeholders' perceptions regarding the ITC<sup>2</sup> Project, and tracking of milestone completion by IWCC. Surveys have been developed to assess implementation activities and key stakeholders' perceptions, while tracking of milestone completion has been by examining project records (e.g., quarterly reports).

To determine the impact of the ITC<sup>2</sup> Project, examination of participant outcomes utilized a research design approach which included comparison of two cohorts; a treatment group and a control group. For the purpose of this analysis the treatment group included students that enrolled in the ITC<sup>2</sup> Project starting in the Fall 2014 semester, and the control group included students that enrolled in the IT program prior to the implementation of the ITC<sup>2</sup> Project starting in the Fall 2011 semester. Because the sample size of the treatment and control groups were small, our analyses were limited to descriptive and inferential statistics. The following research questions were examined in the analysis:

1. What are the demographic characteristics of the IWCC students in the treatment and control groups?
2. Are there statistically significant differences in selected outcomes such as program completion, employment, and wages between the treatment and control groups?

Participant data required for analysis were obtained from two different sources: (1) Iowa Western Community College and (2) Iowa Workforce Development (IWD). In order to protect the confidentiality of participant data (e.g., wage data, social security numbers), a secure online data transfer portal was created and a memorandum of understanding (MOU) was developed and signed between IWD and RISE describing the process required for sharing data between agencies. The MOU indicated that treatment and control group participants for the analysis would be selected by the IWCC Project team based on criteria identified by RISE.

## Implementation Findings

To evaluate the implementation of the ITC<sup>2</sup> Project, stakeholder interviews and surveys were conducted and progress in completing milestones was tracked. Stakeholders included college and project leaders, faculty, project staff (e.g., program coordinator, intrusive advisor, internship coordinator), employer partners, and students. The ITC<sup>2</sup> Project implemented all of the milestones/deliverables of the grant with fidelity and all milestones and deliverables were completed or met by the end of the grant.

### Operational Strengths of the Project

The CIT program was greatly improved and expanded using grant funds in several ways:

- *CIT Program Curriculum.* The curriculum was updated/enhanced and aligned to meet industry standards as well as ensure that students completing the program are exposed to modern coursework along with faculty that have specialized knowledge and expertise in the field.
- *Advanced Online and Technology-Enabled Learning Strategies/Formats.* Working with a distance learning specialist, CIT faculty developed and/or expanded/enhanced advanced online and technology-enabled learning strategies and formats available to students. The addition of online courses and course sections allowed the CIT program to accommodate a growing number of students interested in pursuing IT careers.
- *Creation and Development of Two New Awards.* Two new awards, Cyber Security and Data Analytics, were developed and implemented in 2017.
- *Upgraded Classrooms, Equipment, and Software.* The IT lab/classroom was upgraded with state-of-the-art technology, equipment, and software purchased with grant funds. These upgrades (i.e., classroom, equipment, software) expose students to the modern technology typically found in the field and help students gain the skills required to obtain employment in the IT field. In addition, the upgrades facilitate student learning by allowing students to make remote connections and engage in virtual learning as needed and it gives students more opportunities to participate in more hands-on projects and activities.
- *Professional Development.* CIT/ITC<sup>2</sup> faculty and staff participated in professional development opportunities that helped faculty and staff expand their knowledge and skills. Professional development topics included: online learning, virtual desktop infrastructure, and entrepreneurial concepts.
- *Development and Implementation of Articulation Agreements.* IWCC finalized articulation agreements with the University of Northern Iowa and the University of Nebraska - Omaha that facilitate students' transfer to these 4-year institutions.
- *Creation of a "Shared-Use-Space."* Creation of a "Shared-Use-Space" helped facilitate distance learning, increase student's access to faculty and other students in the program,



and helped small business owners develop their online presence. When the grant ends, the space will continued to be supported at IWCC by the Iowa Western Small Business Development Center.

- *Contextual Learning Activities and Internships.* Expansion of the program using grant funds has provided students with additional contextual learning activities, job shadowing, and internships. The internship coordinator and faculty have continued to work on identifying local internships for credit so that students may gain “real-world” experience and gain skills needed for a career in IT.
- *Marketing.* ITC<sup>2</sup> marketing efforts helped to increase awareness and visibility of the program to potential students and industry partners.
- *Improved Collaboration and Alignment between CIT Program, IWD, and Local Industry Partners.* Expansion of the program included making connections with Iowa Workforce Development, local industry partners and inviting industry/employer partners to join advisory/sector boards.
- *Increased Recruiting and Outreach Efforts of Women and Minorities.* Faculty/staff obtained specialized training in gender and minority outreach, recruitment, and retention. ITC<sup>2</sup> project staff hosted at least one conference on Women in IT and invited members of other Iowa community colleges to take part in the conference.

### **ITC<sup>2</sup> Project Challenges**

- *Staff Turnover.* The Project has succeeded in meeting its goals and objectives despite being faced with several turnovers in key staff (e.g., Project coordinator, intrusive advisor, internship coordinator) over the past four years. Each turnover has affected the Project in different ways. For example, the Project coordinator was let go by upper administration rather than the PIs resulting in some delays in accomplishing certain tasks. However, in response, the position was somewhat restructured and an emphasis was placed on marketing when a new Project coordinator was hired. The loss of the intrusive advisor was deeply felt by several faculty, however, a decision was made to eliminate the position after it turned over for the second time.
- *Women in IT.* The enrollment for women has been relatively flat or slightly lower than what it was at the start of the Project despite efforts made by the ITC<sup>2</sup> Project faculty and staff. This lack of an upward trend for women in the CIT program suggests that barriers still exist and that there is a need to overcome them so that women can pursue careers in IT.

## Participant Impacts & Outcomes

*Summary of Participant Outcomes for the ITC<sup>2</sup> Project*

<b>Participant Outcome</b>	<b>FY1</b>	<b>FY2</b>	<b>FY3</b>
1. Total Participants Served/Enrollees	211	201	188
2. Total Number Who Have Completed a Grant-Funded Program of Study	0	50	37
a. Total Number of Grant-Funded Program of Study Completers Who are Incumbent Workers	0	0	0
3. Total Number Still Retained in Their Programs of Study (or Other Grant-Funded Programs)	211	201	244
4. Total Number Retained in Other Education Program(s)	0	0	24
5. Total Number of Credit Hours Completed (aggregate across all enrollees)	3,258	3,593	4,534
a. Total Number of Students Completing Credit Hours	211	201	188
6. Total Number of Earned Credentials (aggregate across all enrollees)	0	50	41
a. Total Number of Students Earning Certificates – Less Than One Year	0	0	2
b. Total Number of Students Earning Certificates – More Than One Year	0	18	10
c. Total Number of Students Earning Degrees	0	32	29
7. Total Number Pursuing Further Education After Program of Study Completion	0	5	11
8. Total Number Employed After Program of Study Completion	0	28	33
9. Total Number Employed After Retained in Employment After Program of Study Completion	0	0	0
10. Total Number of Those Employed at Enrollment Who Receive a Wage Increase Post-Enrollment	0	0	0

To determine the impact of the ITC<sup>2</sup> Project, examination of participant outcomes utilized a research design approach that compared two cohorts; a treatment group (students starting in the Fall 2014 semester) and a control group (students starting in the Fall 2011 semester).

- Results show that students in the treatment group completed/earned more certificates than students in the control group. Students in the control group did not earn any certificates while in the program.
- Students participating in the treatment group earned approximately \$900 more in reported quarterly wages at Time 1 than students participating in the control group, however, the difference was not statistically significant.

## Conclusions

Overall, the project leadership, faculty and staff have been successful in developing and implementing the ITC<sup>2</sup> Project. The CIT program is expected to be sustainable for at least four years after the grant ends in September 2017 and the program is expected to continue to expand and grow in its capacity to serve students.

### Accomplishments

- *Impact on Students.* Between 2013 and 2017, a total of 588 participants were enrolled at IWCC and took CIT courses. A total of 11,385 credit hours were completed by students within the first three years of the project, and by June 30, 2017, students in the CIT program had earned 83 Associate's degrees, 3 diplomas, and 66 certificates.
  - Two new programs (e.g., Cyber Security, Data Analytics) were developed and the curricula were expanded/enhanced to increase student opportunities for hands-on projects, real world experiences, internships, and learning that involves modern equipment and software that students are likely to use in their careers.
  - Students benefitted from guidance and support provided by faculty/staff as they prepared for jobs (e.g., professional profile photos, resume workshops, cover letter help, mock interviews, and how to dress).
- *Impact on the CIT Program and Faculty.* Faculty and staff have been positively impacted by the opportunities afforded through the ITC<sup>2</sup> Project. Examples include:
  - Upgrades/updates allow faculty to expose students to the leading technology while giving them real world experiences.
  - Faculty have continued to remain current and up-to-date on the latest technology through their participation in various professional development and training opportunities funded by the grant.
  - Increased access for students interested in pursuing a career in IT through the enhancements/changes made to their course delivery methods (e.g., online courses and recorded videos have been developed and made available to students) and through collaboration between ITC<sup>2</sup> Project faculty/staff and Continuing and Career Education faculty/staff in helping students acquire CIT credits.
  - Equipment purchases (e.g., cloud and virtual infrastructure, servers, thin clients) and system installations (e.g., software including Adobe Creative Cloud and VMware) that align with equipment/software found in industry today.
  - Increased marketing (e.g., social media, videos) presence that has increased visibility and awareness of the program to prospective students and industry partners.

- *Connections with Local Industry/Employer Partners.* The Project has had a direct impact on employer partners through the increased availability of highly skilled students needed in the workforce. The relationship between the CIT department and employer partners is mutually beneficial:
  - Employer partners sit on advisory committees and sector boards providing input that helps to ensure that students get an experience that meet industry standards (e.g., input on new/revised curriculum, purchase of equipment and software) while increasing the workforce with highly skilled workers.
  - Employer partners provide students with internship opportunities that often lead to offers of employment.
  - Employer partners provide Enter IT Projects for students to work on and complete and they often participate in career fairs, review resumes, conduct mock interviews, and conduct tours of their respective businesses.
  - Relationships developed with employer partners have helped to foster favorable views of the CIT department among employer partners and the community at large.

### **Sustainability**

- *Continuation of Project.* Current Project faculty will continue to work in the CIT department at IWCC and will continue to use their experience and knowledge that resulted from their work on the Project. To date, the internship coordinator and Project secretary will continue in their current positions once the grant ends in September 2017.
- *Equipment/Software.* Overall, the program, including equipment and software, is expected to be sustainable for the next four or so years. At the end of the four to five years, academic licensing will need to be renewed and equipment will more than likely need to be updated. It is anticipated that some of the equipment will become outdated enough to break and will need to be replaced rather than updated. The grant allowed the CIT department to purchase over \$700,000 worth of equipment/software and will therefore become increasingly difficult to upgrade and/or replace given the cost.
- *Continued Partnerships with Local Industry.* Project directors reported that they are hopeful that employer partners will continue to step in to help sustain the program through donations (e.g., equipment, software), grants (e.g., scholarships), and assistance for students (e.g., participation in career fairs, offering internships).

The following report describes the evaluation activities conducted during the four-year grant, including interviews that were conducted with project leadership, instructors, and other key stakeholders, and tracking progression of milestone completion. This report discussed results of interviews, surveys, project accomplishments and challenges, deliverables, and an outcomes evaluation.

## INTRODUCTION

Iowa Western Community College (IWCC), established in 1967, is located in Council Bluffs, Iowa with satellite campuses in Atlantic, Iowa; Harlan, Iowa; Shenandoah, Iowa; and Clarinda, Iowa. In response to regional needs to fill Information Technology (IT) jobs with highly skilled and knowledgeable employees, IWCC, in conjunction with local four-year universities including University of Nebraska – Omaha and local employers, proposed the development and redesign of IWCC's Computer Information Technology (CIT) programs to improve recruitment and retention of students in CIT programs and to better address local employers' needs for highly skilled workers in IT.

In 2012, Iowa Workforce Development (IWD) reported discrepancies between the number of jobs available in Iowa and the work skill sets of the workforce (Iowa Workforce Development, 2012). IWD found that while half (50%) of all jobs in Iowa were classified as middle skills jobs (i.e., jobs that require workers to have education beyond a high school degree [e.g., certificate or Associate's Degree], but less than a four-year degree), only 33% of the workforce was qualified for those middle skill jobs. In contrast, 18% of jobs available in Iowa were classified as low-skilled, while 38% of the workforce was considered to be low-skilled (Iowa Workforce Development, 2012).

The job outlook for IT is promising. In 2016, the annual median pay for a computer support specialist was \$52,160; \$135,800 for a computer programmer; \$66,130 for a web developer; and \$47,640 for a graphic designer (Bureau of Labor Statistics, 2016). Based on current trajectories, the salaries for highly skilled workers in IT careers are expected to increase anywhere from 1% (graphic designers) to 27% (web developers) depending on the specialty. The rate of growth expected for skilled workers in the IT field is approximately 7% higher than the rate of growth in overall occupations (Bureau of Labor Statistics, 2016).

In October, 2013, IWCC was awarded a four-year grant from the U.S. Department of Labor (DOL) Trade Adjustment Assistance Community College Career Training (TAACCCT) Grant Program whose mission is to provide community colleges and other eligible institutions of higher education with funds to develop, expand, and improve education and career training programs in order to prepare program participants for employment in high wage and high skill occupations.

IWCC is situated near several large companies (e.g. Yahoo, PayPal, and Google) in and around Council Bluffs that need highly skilled IT workers. The grant provided the community college with the opportunity to respond to employer demands for skilled workers by developing and implementing the Information Technology – Credentials to Careers (ITC<sup>2</sup>) Project to provide students with training in the application of various IT areas including networking, hardware and software installation, help desk, graphic communications, cloud and virtual infrastructure, and cyber security. Students completing a CIT program have the knowledge and skills needed to secure middle skills jobs. However, the overall goal of the program is for students to continue their education at a four-year university, become high skill workers, and earn a four-year degree.

The implementation of the ITC<sup>2</sup> Project has helped IWCC and the CIT program to increase its visibility through its regional marketing efforts, increase the number of students enrolling in CIT courses, offer more IT related activities (e.g., Cyber Defense Competition, Nerd Squad), increase the number of IT programs and courses offered, and increase student access to state-of-the-art technology and software.

## **IMPLEMENTATION OF THE INFORMATION TECHNOLOGY – CREDENTIALS TO CAREERS (ITC<sup>2</sup>) PROGRAM**

The Information Technology – Credentials to Careers (ITC<sup>2</sup>) Project offers programs designed to prepare students with training needed to excel in the current job market. It offers state-of-the-art technology (e.g., equipment and software), enhanced with new and/or updated curriculum that includes hands-on experiences, cutting edge coursework, internship and job shadowing opportunities, redesigned stacked and latticed credentialing of IT specific certificates and degrees, and new 2+2 articulation agreements with four year colleges and universities. The Project has helped to increase the recruitment and retention of students interested in pursuing careers in the IT field.

### **Current ITC<sup>2</sup> Programs**

Programs offered by the CIT program cover a wide range of IT options (e.g., computer science, management information systems, network or system administration). The following section describes the implementation of CIT programs offered by the community college.

#### **Computer Science, A.A.**

The Computer Science program prepares students intending to transfer to a four-year college or university. It offers a broad introduction to IT that prepare students for a variety of careers that

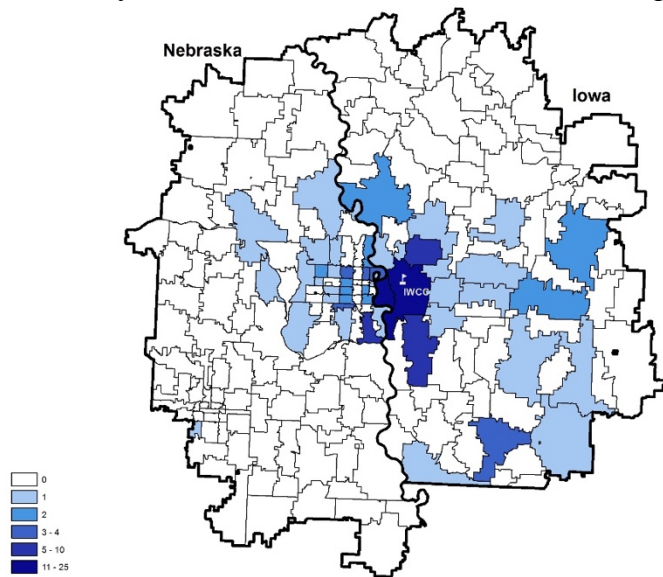


Figure 1. Computer Science Degree Participants by Zip Code

range from entry level to upper level positions (e.g., web designers and developers, software engineers, and computer network administrators). Students enrolled in the Computer Science program can choose one of four areas of focus: (1) Application Programming, (2) Computer Networking, (3) Web Programming, and (4) E-Commerce. Specific information about the program and its requirements can be found at <http://bit.ly/2gH1LQZ>.

*Students Enrolled in the Computer Science Program. By June 30, 2017, a*

total of 159 students have taken courses or have enrolled in the Computer Science Program. Of these students, 128 resided within a 50-mile radius of IWCC's main campus (see Figure 1). By June 30, 2017, a total of 10 participants have earned a degree in Computer Science.

### Computers: Application and Web Programming, A.A.S.

The Computers: Application and Web Programming program is designed for students that want to enter the workforce upon completion of the two-year degree. Students completing the program are prepared for entry-level jobs that include web programmers, software programmers, or database programmers. Students in this program also have the option of transferring to a four-year institution. Specific information about the program and its requirements can be found at <http://bit.ly/2wGQ6eh>

#### *Students Enrolled in the Computers: Application & Web Programming Program.*

By June 30, 2017, a total of 97 students have taken courses or have enrolled in the Computers: Application and Web Programming Program. Of these students, 84 resided within a 50 mile radius of IWCC's main campus (see Figure 2). By June 30, 2017, a total of 21 participants have earned a degree in Computers: Application and Web Programming.

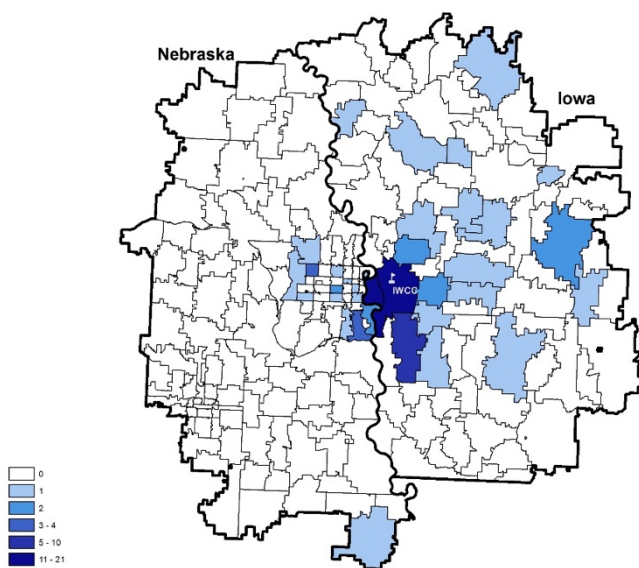


Figure 2. Computers: Application and Web Programming Participants by Zip Code

### Computers: Cyber Security, A.A.

The Computers: Cyber Security program prepares students intending to transfer to a four-year college or university. This program prepares students for careers that range from entry-level to upper-level in Cyber Security. This new program was implemented in Fall 2017. Specific information about the program and its requirements can be found at <http://bit.ly/2gNE3qc>.

*Students Enrolled in the Computers: Cyber Security Program.* By June 30, 2017, a total of 15 students enrolled in courses or have enrolled in the Computers: Cyber Security program. Of these, 13 resided within a 50-mile radius of IWCC's main campus (see Figure 3).

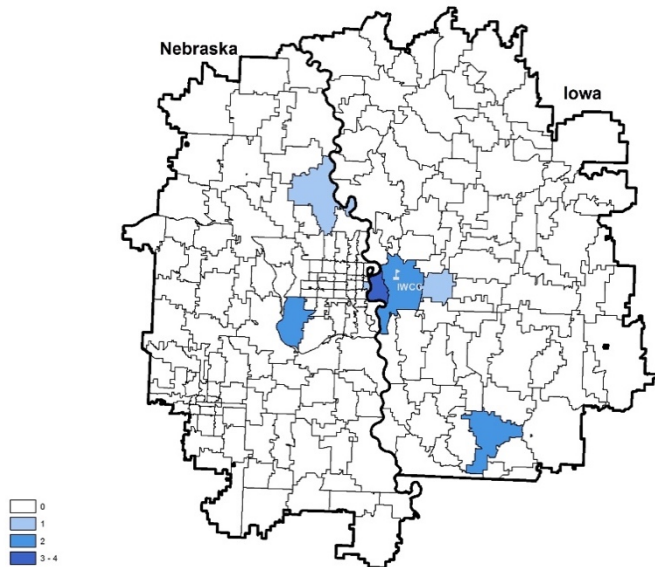


Figure 3. Computers: Cyber Security Degree Participants by Zip Code

### Computers: Desktop Support Certificate

The Computers: Desktop Support Certificate program is designed for students that want to enter the workforce upon completion of this one-semester certificate. Students are prepared for entry-level support, help desk, and computer repair positions. Specific information about the program and its requirements can be found at <http://bit.ly/2wKN20R>.

*Students Enrolled in the Computers: Desktop Support Certificate Program.* By June 30, 2017, a total of 23 students have enrolled in this program with 19 residing within a 50-mile radius of IWCC's main campus (see Figure 4). By June 30, 2017, a total of 19 participants have earned a Desktop Support Certificate

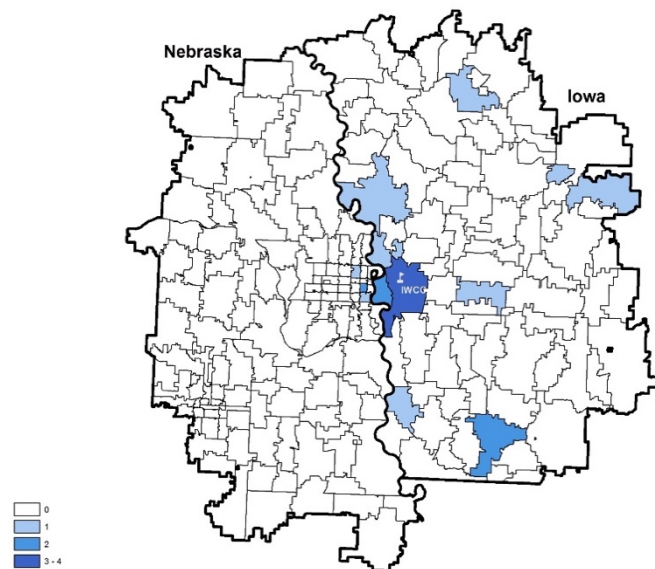


Figure 4. Computers: Desktop Support Certificate Participants by Zip Code



### Computers: Management Information Systems, A.A.

The Computers: Management Information Systems program prepares students intending to transfer to a four-year college or university. This program prepares students for management careers that focus in IT in both private and public sectors. Specific information about the program and its requirements can be found at <http://bit.ly/2gO9wIA>.

*Students Enrolled in the Computers: Management Information Systems Program.* By June 30, 2017, a total of 46 students have enrolled in courses or the program. Of these students, 37 resided within a 50-mile radius of IWCC's main campus (see Figure 5). By June 30, 2017, a total of 10 participants had earned a degree in Computers: Management Information Systems.

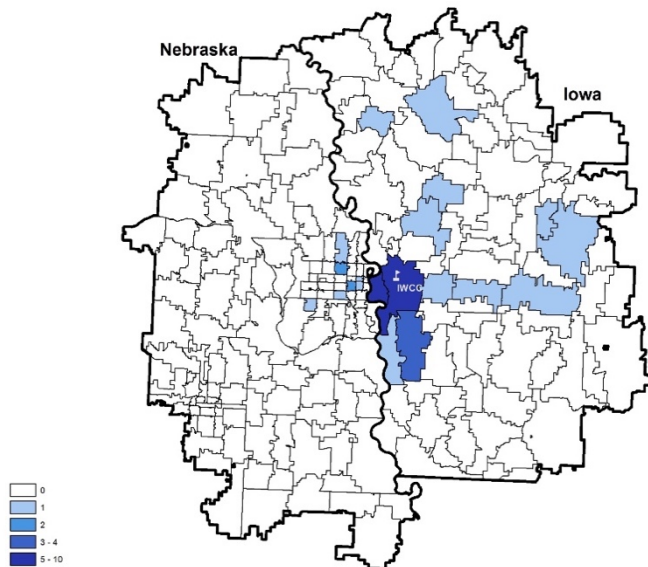


Figure 5. Computers: Management Information Systems Degree Participants by Zip Code

### Computers: Network and System Administration, A.A.S.

The Computers: Network and System Administration program is designed for students wanting to enter the workforce upon completion of the two-year degree. It prepares students for careers as network and system administrators that implement and manage interconnected computer systems and networks. Specific information about the program and its requirements can be found at <http://bit.ly/2wKeuvs>.

*Students Enrolled in the Computers: Network and System Administration Program.* By June 30, 2017, a total of 96 students have enrolled in courses or the program. Of these, 83 resided within a 50-mile radius of IWCC's main campus (see Figure 6). By June 30, 2017, a total of 25 participants had earned a degree in Computers: Network and System Administration.

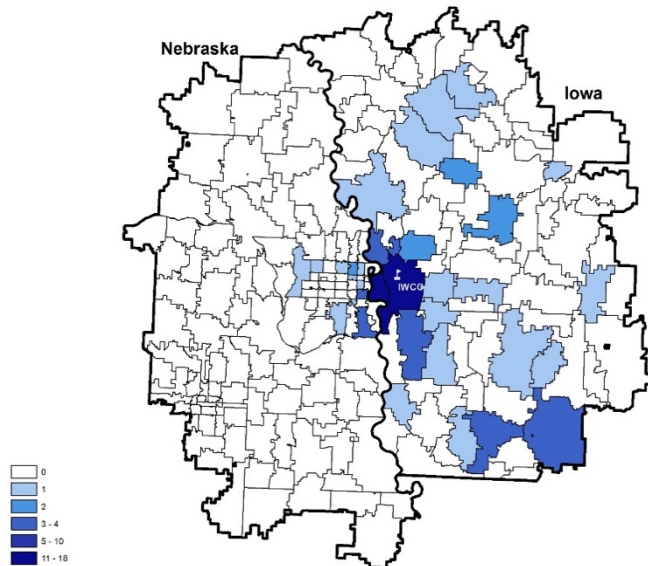


Figure 6. Computers: Network and System Administration Degree Participants by Zip Code

## Computers: Programming Certificate

The Computers: Programming Certificate program is designed for students that want to enter the workforce upon completion of this two-semester certificate. It prepares students for entry-level careers as computer programmers. Specific information about the program and its requirements can be found at <http://bit.ly/2gPNYeA>.

*Students Enrolled in the Computers: Programming Certificate Program.* By June 30, 2017, a total of 26 students had enrolled in this program. Of these, 25 resided within a 50-mile radius of IWCC's main campus (see Figure 7). By June 30, 2017, a total of 23 participants had earned a Computers: Programming Certificate.

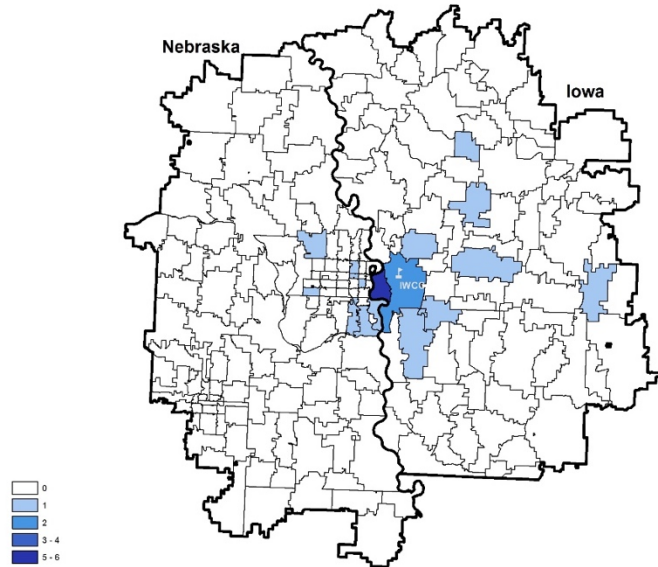


Figure 7. Computers: Programming Certificate Participants by Zip Code

## Computers: System Administration Certificate

The Computers: System Administration Certificate program is also designed for students that want to enter the workforce upon completion of this two-semester certificate. Students are prepared for entry-level careers in IT maintaining network operating systems. Specific information about the program and its requirements can be found at <http://bit.ly/2wMsfus>.

*Students Enrolled in Computers: System Administration Certificate Program.* By June 30, 2017, a total of 27 students had enrolled in courses or the program. Of these, 23 resided within a 50 mile radius of IWCC's main campus (see Figure 8). By June 30, 2017, a total of 24 participants had earned a Computers: System Administration Certificate.

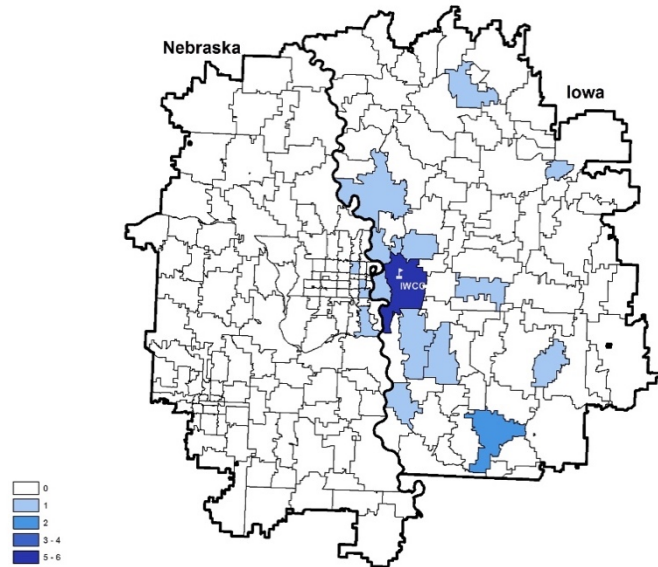


Figure 8. Computers: System Administration Certificate Participants by Zip Code

## Graphic Communications, A.A.S.

The Graphic Communications program is designed for students wanting to enter the workforce upon completion of the two-year degree. This program prepares students for a wide range of employment opportunities including publishers, papermakers, inkmakers, and in-house design. Specific information about the program and its requirements can be found at <http://bit.ly/2vJl1Uf>.

### *Students Enrolled in Graphics*

*Communication Program.* By June 30, 2017, a total of 72 students had enrolled in courses or in the program. Of these, 61 resided within a 50-mile radius of IWCC's main campus (see Figure 9). By June 30, 2017, a total of 17 participants had earned a degree in Graphic Communications.

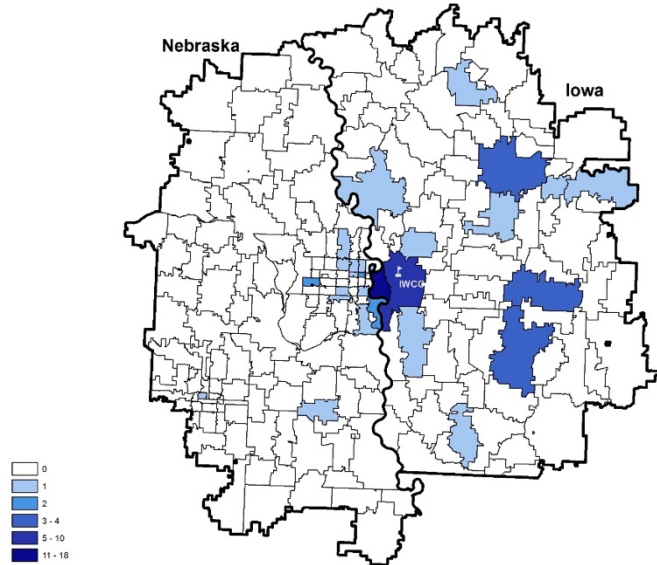


Figure 9. Graphic Communications Degree Participants by Zip Code

## Graphic Communications, Diploma

The Graphic Communications diploma program is designed for students wanting to enter the workforce upon completion of a one-year diploma. This program provides students with skills needed for a career in graphic arts in printing and web development. Specific information about the program and its requirements can be found at <http://bit.ly/2vQASET>.

### *Students Enrolled in Graphics*

*Communication (Diploma) Program.* By June 30, 2017, a total of four students had enrolled in courses or in the program. Each of the four students resided within a 50-mile radius of IWCC's main campus (see Figure 10). By June 30, 2017, a total of three participants had completed the Graphic Communications Diploma.

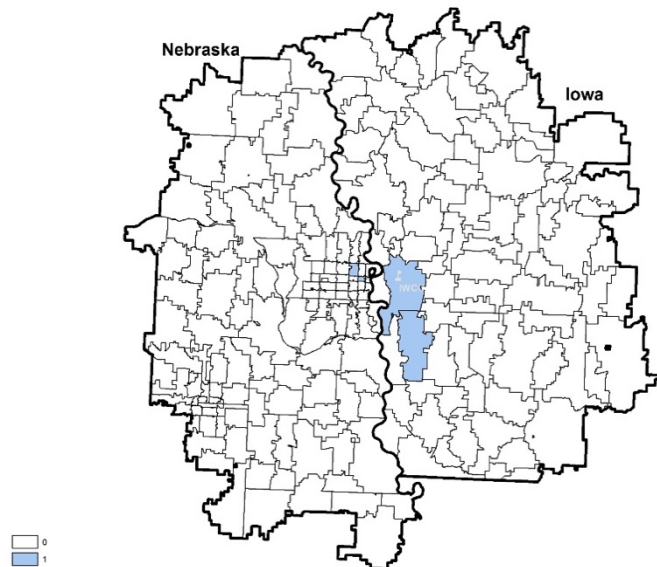


Figure 10. Graphic Communications Diploma Participants by Zip Code

## Third Party Evaluator

A comprehensive evaluation of the ITC<sup>2</sup> Project required by the U.S. Department of Labor (DOL), consisting of an implementation evaluation and an outcomes evaluation, was led by the *Research Institute for Studies in Education (RISE)*. Established in 1974, RISE is the research unit of the School of Education (Iowa State University's College of Human Sciences) and serves the research and evaluation needs in the field of education. RISE evaluates inputs (abilities, actions, and activities designed to achieve the outcomes), intermediate outcomes (processes and immediate or short-term effects), and ultimate outcomes (long-term effects or changes). RISE staff provide expert services and consultation in quantitative and qualitative research design and methodology, survey development, sample selection, data entry, statistical data analysis, program and project evaluation, and publications results. The RISE evaluation team has extensive experience conducting evaluations of cross-sectional and longitudinal projects, data collection, analyzing data using advanced statistical and qualitative analysis, and reporting, as well as experience examining organizational processes, achievement of goals, and stakeholder contributions.

The RISE evaluation team was responsible for conducting both the implementation and the outcomes evaluation of the ITC<sup>2</sup> Project. The implementation evaluation describes the program environment and its processes, describes and measures various program operations, identifies those factors that have an impact on the implementation of the program and its outcomes, and offers recommendations that the project team members and leadership can use to strengthen the program. The outcomes evaluation measures change and impact on students as a result of their participation. For example, determining the extent with which program participation predicts employment and change in wage earnings. The RISE evaluation team is also responsible for the overall management of the evaluation project. The following section summarizes the overall implementation and outcomes evaluation plan.

### Evaluation Plan – Program Implementation Evaluation

The ITC<sup>2</sup> Project sought to build training capacity at IWCC to meet the needs of the local IT sector for high skilled workers – both those who are incumbents and those who have suffered job loss related to the Trade Adjustment Act (TAA) or other circumstances. The ITC<sup>2</sup> Project evaluation focused on students and stakeholders and reported on how effectively the Project met the local needs with the focus on the project implementation process.

*Evaluation Approach.* A program oriented evaluation approach framed by *a-e-I-o-u Approach to Program Evaluation* (Kemmis and Walker, 2000) was utilized for the implementation evaluation of the ITC<sup>2</sup> Project. This evaluation approach provides a framework for organizing key evaluation questions and allows various methods of data collection to be used. This approach examines inputs (actions and activities designed to achieve specific goals), intermediate outcomes (immediate or short-term effects), and ultimate outcomes (long-term effects or changes). Evaluation questions are organized into five areas:

- (a)ccountability: Did the project team do what they said they would do?

- (e)ffectiveness: How well did they do it?
- (I)mpact: What changed as a result of those actions?
- (o)rganizational or environmental factors: What factors enhanced or limited goal achievement?
- (u)nticipated outcomes: What happened that was not expected?

These evaluation areas provide the framework for the developed plan and the conducted comprehensive evaluation of the ITC<sup>2</sup> Project which includes sections that focused on curriculum and delivery methods, student assessment, and participant support and career services. In assessing the operational *strengths* and *challenges* of the Project during and following implementation, not only did we consider overall effectiveness, but we also considered broader impacts, contextual effects related to the organization and project environment, and unexpected results.

*Implementation Evaluation Activities.* Evaluation methods for program implementation are both qualitative and quantitative in nature and address the following four DOL TAACCCT required questions:

- How was the particular curriculum selected, used, or created?
- How were programs and program design improved or expanded using grant funds?
- Did the grantees conduct an in-depth assessment of participants' abilities, skills, and interests to select participants into the grant program?
- What contributions did each of the partners (sector board, employers, workforce system, other training providers and educators, philanthropic organizations, etc.) make towards program design, curriculum development, recruitment, training, placement, program management, leveraging resources, commitment to program sustainability?

Detailed information about the methodology and data sources used to answer these questions are described in Table 1 and the timelines for implementing these evaluation activities in years 2-4 is presented in Table 2.

### **Evaluation Plan – Outcomes Evaluation**

To determine the impact of the ITC<sup>2</sup> Project, examination of participant outcomes (e.g., quarterly wage data) utilized a research design approached which included a comparison of two cohorts – a treatment group and a control group. Because the sample size of the treatment and control groups were small, the analyses were limited to descriptive and inferential statistics. Descriptive statistics include demographic data (e.g., age, race, sex, etc.) on both the treatment and control groups and inferential statistics include t-tests.

Table 1.  
*Evaluation Questions and Key Areas of Interest Guiding Implementation Analysis*

Evaluation Questions and Key Areas of Interest	Methodology	Data Sources
<p><b>1. How was the particular curriculum selected, used, or created?</b></p>	<ul style="list-style-type: none"> <li>• Document analysis</li> <li>• Focus groups</li> <li>• Surveys</li> </ul>	<ul style="list-style-type: none"> <li>• Project records</li> <li>• Project Team</li> <li>• Faculty</li> </ul>
<p><b>2. How were programs and program design improved or expanded using grant funds?</b></p> <ul style="list-style-type: none"> <li>• What types of delivery methods are offered?               <ul style="list-style-type: none"> <li>○ Are wireless coverage and capacity sufficient on campus for online classes?</li> <li>○ Are faculty satisfied with online classes?</li> </ul> </li> <li>• Program administrative structure               <ul style="list-style-type: none"> <li>○ Fidelity of Implementation: Is the ITC<sup>2</sup> program on target to meets its goals and objectives?</li> <li>○ On average, how many students are enrolled in class?</li> <li>○ What is the faculty/student ratio?</li> <li>○ How often are meetings held to discuss progress in implementation of ITC<sup>2</sup> program?</li> <li>○ Communication between administration/faculty/students.</li> <li>○ What is the process for sharing information with students?</li> </ul> </li> <li>• Support services and other services offered               <ul style="list-style-type: none"> <li>○ What is the role of the Intrusive Advisor?</li> <li>○ What does the Intrusive Advisor add to student experience?</li> <li>○ What is the Intrusive Advisor/Student ratio?</li> <li>○ What type of support is available for students that primarily attend in the evening?</li> <li>○ What supplemental learning courses are provided?</li> <li>○ Is tutoring available?</li> <li>○ Other services.</li> </ul> </li> <li>• Marketing/Recruitment               <ul style="list-style-type: none"> <li>○ Have recruitment efforts changed?</li> <li>○ What marketing techniques are used to recruit or communicate with potential students?</li> <li>○ Is the program website up to date? Easy to navigate?</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Document analysis</li> <li>• Focus groups</li> <li>• Surveys</li> </ul>	<ul style="list-style-type: none"> <li>• Project records</li> <li>• Project Team</li> <li>• Faculty</li> <li>• Advising staff</li> <li>• Student participants</li> </ul>

Table 1.

*Evaluation Questions and Key Areas of Interest Guiding Implementation Analysis*

<p><b>2. How were programs and program design improved or expanded using grant funds?</b></p> <ul style="list-style-type: none"> <li>• Students             <ul style="list-style-type: none"> <li>○ Why did students enroll in IWCC ITC<sup>2</sup> program?</li> <li>○ How did the student find out about the program?</li> <li>○ What were students' educational/career goals at time of enrollment?</li> <li>○ Satisfaction with advising.</li> <li>○ Satisfaction with courses taken.</li> <li>○ Satisfaction with software offered.</li> <li>○ Level of student engagement (e.g., club/event participation).</li> <li>○ Class attendance.</li> <li>○ Satisfaction with resources available to students.</li> <li>○ Lessons learned.</li> <li>○ How can the program be improved?</li> </ul> </li> <li>• Sustainability             <ul style="list-style-type: none"> <li>○ How is the institution expanding their capacity to deliver the proposed activities?</li> <li>○ How will the institution sustain the proposed activities beyond the grant period?</li> </ul> </li> </ul>		
<p><b>3. Did the grantees conduct an in-depth assessment of participants' abilities, skills, and interests to select participants into the grant program?</b></p> <ul style="list-style-type: none"> <li>• Assessment tools and processes             <ul style="list-style-type: none"> <li>○ Which assessments are used to evaluate participants' abilities (e.g., NCRC)?</li> </ul> </li> <li>• Persons conducting assessment</li> <li>• Use of assessment results             <ul style="list-style-type: none"> <li>○ How are assessments used to evaluate participants?</li> <li>○ Can assessment data be used in comparative analysis when evaluating program outcomes?</li> </ul> </li> <li>• Usefulness of assessment results for determining program and course sequence for participants</li> <li>• Career guidance             <ul style="list-style-type: none"> <li>○ What type of career guidance is provided for students?</li> <li>○ How are assessment data used when providing career guidance?</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Document analysis</li> <li>• Comparative statistical analysis of assessment data relative to program outcomes</li> <li>• Focus groups</li> <li>• Surveys</li> </ul>	<ul style="list-style-type: none"> <li>• Project records</li> <li>• Participants' assessment scores</li> <li>• Project Team</li> <li>• Faculty</li> <li>• Advising staff</li> <li>• Student participants</li> </ul>

Table 1.

*Evaluation Questions and Key Areas of Interest Guiding Implementation Analysis*

<p><b>4. What contributions did each of the partners (sector board, employers, workforce system, other training providers and educators, philanthropic organizations, etc.) make towards program design, curriculum development, recruitment, training, placement, program management, leveraging resources, commitment to program sustainability?</b></p> <ul style="list-style-type: none"> <li>• Factors contributing to involvement or lack thereof in program.</li>   <li>• Partner contributions deemed most critical to program success.</li>   <li>• Partner contributions deem important, but less impactful.</li> </ul>	<ul style="list-style-type: none"> <li>• Surveys</li> <li>• Focus groups</li> </ul>	<ul style="list-style-type: none"> <li>• Project Team</li> <li>• Partners</li> </ul>
---	---	--



Table 2.

*ITC<sup>2</sup> Program Implementation Evaluation Timeline*

EVALUATION QUESTIONS	Year 2 10/1/2014 – 09/30/2015				Year 3 10/1/2015 – 09/30/2016				Year 4 10/1/2016 – 09/30/2017			
	Oct-Dec Q1	Jan-Mar Q2	Apr-June Q3	July-Sept Q4	Oct-Dec Q1	Jan-Mar Q2	Apr-June Q3	July-Sept Q4	Oct-Dec Q1	Jan-Mar Q2	Apr-June Q3	July-Sept Q4
<b>1. How was the particular curriculum selected, used, or created?</b>				F(I) PT(I)				F(I) PT(I) R(DA)				F(I) PT(I) R(DA)
<b>2. How were programs/program designs improved or expanded using grant funds?</b>												
• Delivery Methods				F(I) PT(I)				F(I) PT(I)				F(I) PT(I)
• Program Administrative Structure				F(I) PT(I)				F(I) PT(I)				F(I) PT(I)
• Support Services and Other Services				IA(I) PT(I)				IA(I) PT(I)				IA(I) PT(I)
• Marketing/Recruitment				M(I) PT(I) R(DA)				M(I) PT(I) R(DA)				M(I) PT(I) R(DA)
• Students			S(S)	S(S)			S(S)	S(S)				S(S)
• Sustainability	PT(I)				PT(I)				PT(I)			

\*Note: *Data Sources:* F=Faculty, PT=Project Team, S=Students, IA=Intrusive Advisor, P=Partner, R=Project Records, M=Marketing  
*Method:* (I)=Interview, (S)=Survey, (DA)=Data Analysis  
*Quarters:* Q1 (October-December), Q2 (January-March) Q3 (April – June), Q4 (July – September)

Table 2.

*ITC<sup>2</sup> Program Implementation Evaluation Timeline*

EVALUATION QUESTIONS	Year 2 10/1/2014 – 09/30/2015				Year 3 10/1/2015 – 09/30/2016				Year 4 10/1/2016 – 09/30/2017			
	Oct-Dec Q1	Jan-Mar Q2	Apr-June Q3	July-Sept Q4	Oct-Dec Q1	Jan-Mar Q2	Apr-June Q3	July-Sept Q4	Oct-Dec Q1	Jan-Mar Q2	Apr-June Q3	July-Sept Q4
<b>3. Did the grantees conduct an in-depth assessment of participants’ abilities, skills, and interests to select participants into the grant program?</b>												
• Assessment tools and processes			PT(I) IA(I) R(DA)				PT(I) IA(I) R(DA)				PT(I) IA(I) R(DA)	
• Use of Assessment Results	PT(I) IA(I) F(I)				PT(I) IA(I) F(I)				PT(I) IA(I) F(I)			
• Usefulness of assessment results for determining program/course sequence of participants.	IA(I)				IA(I)				IA(I)			
• Career Guidance			IA(I)				IA(I)				IA(I)	
<b>4. What contributions did each of the partners make towards program design, curriculum development, recruitment, training, placement, program management, leveraging resources, commitment to program sustainability?</b>												
• Contributions by Partners		PT(I) P (I)				PT(I) P (I)				PT(I) P (I)		
• Level of Partner Involvement		PT(I) P (I)				PT(I) P (I)				PT(I) P (I)		

\*Note: *Data Sources:* F=Faculty, PT=Project Team, S=Students, IA=Intrusive Advisor, P=Partner, R=Project Records, M=Marketing  
*Method:* (I)=Interview, (S)=Survey, (DA)=Data Analysis  
*Quarters:* Q1 (October-December), Q2 (January-March) Q3 (April – June), Q4 (July – September)

## **IMPLEMENTATION EVALUATION: METHODOLOGY**

The following section describes the methodology used to examine and evaluate implementation activities, key stakeholders' (e.g., students, faculty, employer partners) perceptions of the ITC<sup>2</sup> Project, and tracking of milestone completion.

### **Completion of Priorities, Strategies, and Milestones**

The ITC<sup>2</sup> Project Grant identifies five grant priorities (e.g., develop stacked and latticed credentials, develop online learning, provide students with enhanced student services) along with one to six milestones per priority that IWCC was required to complete within a specified time frame. To evaluate whether IWCC met these milestones, RISE staff regularly reviewed each quarterly report submitted to DOL by IWCC.

To track progress made by IWCC in completing each milestone specified in the grant, RISE staff created a milestone table consisting of the five priorities listed in the grant (see Appendix A). Progress made in completing milestones was updated on a quarterly basis and data were compiled and reported annually and in aggregate using each of the 14 quarterly reporting cycles for the final report. Data utilized for the milestone tables encompasses activities from Fiscal Year 1, Quarter 1 (October 1, 2013) through Fiscal Year 4, Quarter 2 (March 31, 2017).

### **ITC<sup>2</sup> Program Evaluation Surveys**

A series of surveys<sup>1</sup> was developed to collect information and perceptions from key stakeholders about the overall implementation of the ITC<sup>2</sup> Project, services provided, and partnerships with employers. The focus of these surveys is based on key areas/activities identified in conjunction with the ITC<sup>2</sup> Project staff. Each survey developed and distributed to key stakeholders is described below.

#### **Student Surveys**

Three online student (two continuing, one exit) surveys developed to assess students' experiences (e.g., goals, advising, courses) in the program were administered using the Qualtrics online survey software tool. Links inviting new and continuing students to complete the online student surveys were distributed to students (once during the fall semester and once in the spring semester). To ensure that the students completed the surveys, designated community college representatives (e.g., project coordinator, intrusive advisor) went to ITC<sup>2</sup> Project classrooms and asked students to complete the online survey during class. A link inviting students that have completed the program to complete an exit survey was sent approximately six months after graduation.

---

<sup>1</sup> Whenever possible, all surveys were administered using Qualtrics, a secure online survey software tool (Qualtrics, Provo, UT), and participants were informed that their responses were confidential and would only be reported in aggregate.

*Student Survey (Fall Semester).* This survey was open to new and continuing students between the months of August and September during the Fall 2014, 2015, and 2016 semesters. Overall, this survey asked students to response to questions about the following:

- Demographics: Students were asked about their demographic information (address, phone number, current email address, race, and ethnicity) which allows the CIT program to track the students as needed for the ITC<sup>2</sup> Project.
- Intake Form Questions: Students were asked to complete the intake form questions for the CIT program. The intake form questions included Pell Grant Eligibility, Veteran status, and disability status.
- Enrollment/Goals: Students were asked about the reasons they enrolled at IWCC (e.g., how they heard about the program, educational and career goals).
- Returning Students: Returning students are asked whether their educational and career goals have changed, what activities they participated in over the summer, and any new activities they would like to see moving forward.

*Student Survey (Spring Semester).* This survey was open to new and continuing students during the latter part (i.e., April and May) of the Spring 2014, 2015, 2016, and 2017 semesters. The original administration of the survey in Spring 2014 was conducted utilizing a paper version of the survey in order to collect data from students just before the semester ended. The subsequent administrations of the survey were conducted online in order to minimize errors resulting in out of range values and inconsistent responses.

The survey administered in the spring semester asked students about a variety of items regarding their experiences in the program including enrollment/goals, advising/registration, course evaluation, program and facilities evaluation, activities, internships, engagement, and valuable lessons. The Spring student survey asked students somewhat different questions than the survey administered in the Fall (those differences are noted below).

- Enrollment: Students were asked about the reasons they enrolled at IWCC (e.g., how they heard about the program educational, career goals) in the Spring 2014 semester survey. In subsequent Spring surveys, students were asked about their focus area, the number of semesters they have been enrolled and expect to still complete, and when they plan to graduate. Demographic data were collected in the Fall student survey.
- Advising/Registration: Students were asked about their experiences with advising and registration procedures (e.g., whether they met with an advisor and the frequency of those visits).
- Course Evaluation: Students were asked about their courses and how helpful those courses were in improving their employable skills. They were also asked to indicate how knowledgeable and helpful their CIT instructors have been.

- Program and Facilities Evaluation: Students were asked about their satisfaction with the CIT facilities and their enjoyment in learning various pieces of software.
- Activities: Students were asked about the CIT activities they have participated in. Activities included club meetings, tours of industry facilities, and participation in the Cyber Defense Competition or Hackathon.
- Employment: Students were asked about their current employment including if they are employed in an IT position, type of employment, where they work, and how long they have been working there. This section was in the Spring 2017 semester survey only.
- Internships: Students were asked about the number of internships they may have had over the past year as well as if the internship resulted in employment.
- Engagement: Students were asked about their class attendance and participation in various extracurricular activities (i.e., mock interviews, tours of industry).
- Valuable Lessons: Students were asked about the most valuable lessons they have learned in their time at IWCC and in the CIT program.

*Student Exit Survey.* Six months after graduating from the program, ITC<sup>2</sup> Project staff sent students a student exit survey. The survey asked students whether they were employed and if so, where. A key aspect of this survey was asking students whether they believed anything was missing from their community college program, how they would improve programs for future students, and their level of satisfaction with various aspects of the program. Due to staff turnover, no responses for this survey were gathered.

### **Internship Surveys**

Internship surveys were developed to obtain feedback from students regarding their experiences with internship opportunities and from employer partners regarding their experience with students from IWCC.

*Student Internship Survey.* A student internship survey was developed to obtain student feedback on the available internship opportunities. Students that had completed their ITC<sup>2</sup> internship were asked about the company they worked for, software they used in the internship, about what they learned and were asked to whether they have comments they would like to share. The student internship survey remained open through May 31, 2017.

*Internship Supervisor Survey.* The internship supervisor survey was developed to obtain employer partner feedback on ITC<sup>2</sup> students placed in an internship with their company. Individuals that supervise ITC<sup>2</sup> student interns were asked to response to questions about the intern's ability, how the internship was initiated, and the intern's soft skills. The internship supervisor survey remained open through May 31, 2017.

## **Employer Partner Surveys**

An employer partner survey was developed to elicit industry feedback regarding their perceptions about how well the program is doing in producing necessary/potential hires from local companies that have been impacted by the ITC<sup>2</sup> Project. In particular, employer partners were asked about internships/part-time work experiences, employment of the ITC<sup>2</sup> students, and opportunities available to IWCC students. The employer partner survey was distributed in the Summer of 2015 and the Spring of 2017.

## **Faculty Survey**

A faculty survey was developed in lieu of a final interview with faculty. This was done due to the fact that the final interview was scheduled after faculty were to already have left for the summer. The faculty were asked about contributions and training, CIT curriculum and classrooms, communication during the ITC<sup>2</sup> Project, and strengths and challenges related to the implementation of the ITC<sup>2</sup> Project. The faculty survey was distributed at the end of the Spring 2017 semester.

## **Interviews**

External evaluators from RISE were on site at IWCC for a half-day meetings with the ITC<sup>2</sup> Project leadership and staff and faculty at least once per year. The evaluation team conducted three interviews with the project's co-directors, staff, and faculty to discuss five primary topics focused on the accomplishments to date: (1) whether goals/objectives were completed in the time expected, (2) what challenges occurred, (3) what barriers made it hard to accomplish tasks, (4) what is needed to continue project tasks, and (5) efforts in sustaining the CIT program.

## IMPLEMENTATION EVALUATION: FINDINGS

The following section presents summarized results of evaluation activities that include completion of milestones; student surveys, internship surveys, and employer partner surveys. Detailed reports and results can be found in Appendices A-P.

### Completion of Priorities/Milestones

Overall, IWCC has completed each of the five priorities and their related strategies and milestones. Priorities 1, 2, and 3 were completed by March 31, 2017, the end of the second quarter in Fiscal Year 4 and Priorities 4 and 5 were completed by September 30, 2016, the end of Fiscal Year 3 (see Appendix A).

#### **Priority 1: Build Stacked and Latticed Curriculum and Academic Career Pathways in Signature Programs**

*Strategy 1.1: Redesign Curricula for Customized, Portable, Stacked, and Latticed Industry Credentials, Diplomas, Degrees and Transfer Programs*

*Milestone 1.1.1: Hire and Train New Staff and Faculty.* All positions were filled and staff were trained by end of Fiscal Year 2, Quarter 1 (December 31, 2014). The Project experienced several staff turnovers (e.g., program coordinator, internship coordinator, intrusive advisor) since the start of the Project. Although most of the positions were filled following each turnover, a decision was made to close the intrusive advisor position due to difficulty in finding qualified individuals.

This milestone was completed by the end of Fiscal Year 2, Quarter 1 (December 31, 2014).

*Milestone 1.1.2: Redesign and Add New Curricula and Realign with Industry-Recognized Credentials.* Throughout the grant, Project staff met with local IT industry representatives to better understand their needs with regards to workers and to help IWCC's ITC<sup>2</sup> Project staff update, align, and/or develop their curriculum to better prepare students with the skills needed for employment in the IT field.

Examples of new curriculum and redesign include:

- Two new programs were created because of the grant: (a) Cyber Security, which began in the Fall 2016 semester, and (b) Data Analytics, which began in the Fall 2017 semester.
- A new Credit to Credentials policy on curriculum that was developed and implemented allowing students to earn credit for non-credit courses taken.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

Milestone 1.1.3: Develop, Mapped and Streamlined Entry and Exit Points to Accelerate Academic and Career Progress, From Non-Credit to Credit, From Certificate to Degree. The CIT department collaborated with other IWCC departments to increase the number of available entry and exit points. Facilitation of streamlined entry and exit points include the following examples:

- Addition of non-credit to credit pathways
- Use of prior learning assessments (e.g., military transcripts)
- Mapping (cross checking competencies) Continuing Education to the CIT department
- Offering evening and weekend courses beginning in Fall 2017

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

Milestone 1.1.4: Establish Third Party Evaluation, Data Collection and Analysis. The Research Institute for Studies in Education (RISE) was hired in Fiscal Year 1, Quarter 2 to complete the third-party evaluation. A detailed evaluation plan (as required by the grant) was developed in June 2014 and implemented by RISE. RISE staff maintained regular contact with ITC<sup>2</sup> Project staff, collected data as described in the detailed evaluation plan and made at least one site visit annually.

This milestone is ongoing through September 30, 2017 and will be completed with submission of the third-party final report.

Milestone 1.1.5: Expand 2+2 Agreements with 4 Year Institutions and Disseminate to Students. To facilitate students' transfer to 4-year institutions, articulation agreements between IWCC and the University of Northern Iowa and IWCC and University of Nebraska at Omaha were finalized. Information regarding the articulation agreement and requirements needed to transfer are disseminated to students by advisors, faculty, and Project staff.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

Milestone 1.1.6: Five Hands-On Projects to Validate Non-Credit to Credit Learning Competencies. A distance learning specialist was hired in November 2014 to complete five hands-on projects validating non-credit to credit learning. Four of the five required hands-on projects were developed by the end of Fiscal Year 3, Quarter 2 (March 31, 2016). The remaining hands-on project was developed and all hands-on projects were available by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).



## **Priority 2: Expand and Enhance Advanced Online and Technology-Enabled Learning Strategies and Formats**

### *Strategy 2.1: Expand and Enhance Customized Advanced Online and Technology-Enabled Learning*

*Milestone 2.1.1: Develop Online and Blended Options for IT Certificate and Degree Programming.* A distance learning specialist, along with faculty, collaborated to develop online delivery of course content. Development of blended and online course options included video lectures and the ability to make remote connections to computer equipment.

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

*Milestone 2.1.2: Upgrade Education and Training Facilities and College Infrastructure to Ensure Distance Learning Availability and Increase Student Access.* A “Shared-use Space” was created to facilitate distance learning and to increase students’ access to faculty as well as access to other students. In addition to the “Shared-use Space,” various upgrades and/or changes were made to improve and facilitate distance learning.

Examples include:

- Virtual desktop infrastructure/equipment
- Private cloud infrastructure/equipment
- Camera/Audio
- Whiteboards
- Computer equipment (e.g., monitors, servers, zero clients)

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

*Milestone 2.1.3: Upgrade IT Lab, NETLAB, and Classrooms for Real-Time, Virtual Learning.* The IT Lab was upgraded with new equipment. In addition, virtual desktop and private cloud infrastructure/equipment, thin clients, and kernel-based virtual machines to be used for virtual and distance learning were purchased.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

*Milestone: 2.1.4: Establish Shared-Use Space.* By the end of the first year of implementation, the Shared-Use-Space (“The Port”), was mostly fully functional with only minor equipment and repairs needed. The Shared-Use Space was utilized by students and the community and is intended to serve as a place for enhancing an entrepreneurial environment. The Shared-Use Space will be sustained beyond the end of the grant and will maintained by the IWCC Small Business Development Center.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

Milestone 2.1.5: Develop Contextualized Learning Activities and Internships. The Internship Coordinator was primarily responsible for making connections and coordinating internship and contextualized learning opportunities for students with community stakeholders. With the assistance of the Internship Coordinator, over 40 students completed credit internships as part of their CIT program. Examples of contextualized learning activities provided for students included organizing tours of local data centers and help desk facilities. In addition, CIT students can access “Enter IT” Projects that match IT student interns with small businesses, entrepreneurs, and non-profits that have limited resources to spend on computing systems.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

*Strategy 2.2: Expand Staff Knowledge and Skills to Provide Customized Programming to Build Capacity and Meet Workforce Needs*

Milestone: 2.2.1: Implement Staff Development – Workshops, Webinars, Trainings, Conferences, Including Annual Working Connections IT Conference (Statewide). Faculty and staff developed, implemented and participated in various staff development meetings, workshops, and conferences over the course of the grant (e.g., the “Working Connections” IT conference [held multiple times], a “Women in IT” conference [held once]). Faculty also participated in various professional development/training on topics that included: online learning, virtual desktop infrastructure, and entrepreneurial concepts.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

Milestone 2.2.2: Faculty Obtain Specialized Certificates to Provide Cutting-Edge Training. Over the course of the grants, various faculty obtained certifications or participated in trainings for iQuery, Windows 10, VMware, Google App Classroom integration, web development, CISSP, Cengage, Nexpose Certified Administrator, and Metasploit Pro Certified Specialist.

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

Milestone 2.2.3: Train Faculty/Staff in Gender and Minority Outreach, Recruitment and Retention. Faculty and staff participated in specialized training in gender and minority outreach. For example, faculty and staff attended workshops and training that focused on women in STEM, women in IT, and recruiting and retaining women in IT fields.

This milestone was completed by the end of Fiscal Year 3, Quarter 4 (September 30, 2016).

Milestone 2.2.4: Establish Industry-Based Externship Placement Opportunities for Faculty. ITC<sup>2</sup> faculty and Project staff had trouble establishing industry-based externship opportunities for students given various security issues at local companies. To compensate, faculty and staff worked directly with local industry to determine local industry needs and with regards to IT skills they seek when recruiting workers. In

addition, one faculty member provided consulting services to local industry and one faculty member works with local industry by helping them build their websites.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

Milestone 2.2.5: Coordinate Annual Training to Increase Women and Minorities in IT Programs and Careers (Statewide). The first Women in IT conference was held in September 2014 (Fiscal Year 1, Quarter 4). The “Women in IT” conference was originally intended to occur annually, however, staffing changes among ITC<sup>2</sup> Project staff led to the postponement of the conference.

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

### **Priority 3: Strengthen and Broaden the Pipeline of Skilled Workers for Iowa’s Information Technology In-Demand Occupations**

#### *Strategy 3.1: Develop a Plan for Contextualized Learning and Workplace Skill Development*

Milestone 3.1.1: Expand Contextualized Learning, Job Shadowing, Service Learning, Internships. The ITC<sup>2</sup> internship coordinator worked with local industry/businesses to identify opportunities and place more than 40 students in internships and more than 30 students in service learning (e.g., “Enter IT” projects) opportunities.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

Milestone 3.1.2: Provide Soft Skills, Job Preparation, and Job Placement Support. Students worked with the ITC<sup>2</sup> internship coordinator to identify credit internships that provided opportunities to learn soft skills and employment readiness skills. In addition, to assisting with internship placement, the internship coordinator also provided job preparation and job placement assistance. Both the internship coordinator and the intrusive advisor assisted students with their soft skills, provided guidance to students on how to dress and on some occasions helped students secure appropriate clothing.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

Milestone 3.1.3: Develop/Implement IT Career Exploration Experiences, Activities and Events. ITC<sup>2</sup> faculty and Project staff developed and implemented various activities and events to further students’ careers in IT exploration. Some activities/events include bringing Google for Entrepreneurs’ Startup Grind to campus; hosting TedTalks Interview Socials, Internship Mixers, career fairs, industry tours, Cyber Defense competition; as well as providing Enter It Project opportunities for students.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

Milestone 3.1.4: Development of Foundational Through Advanced Technical ITS Knowledge/Skills. To help students develop foundational through advanced IT skills, ITC<sup>2</sup> faculty and staff placed students in various internship opportunities and hosted

activities/events, various informational socials, site tours, Enter IT Project opportunities, and community events. In addition, development of foundational/advanced knowledge/skills were enhanced with equipment (e.g., 3D printers) and courses (e.g., Desktop Practicum).

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

*Strategy 3.2: Utilize Marketing and Advising Strategies to Build Capacity by Increasing Numbers of Underrepresented Populations*

*Milestone: 3.2.1: Hire/Train Advising Staff (Navigator) and Marketing Coordinator.* An intrusive advisor and a project/marketing coordinator were hired during the first year of the grant. Both positions experienced turnover that subsequently resulted in the intrusive advisor not be filled after Year 2 of the Project.

This milestone was completed by the end of Fiscal Year 2, Quarter 1 (December 31, 2014).

*Milestone 3.2.2: Implement Specialized IT Marketing, Outreach/Recruitment/ Retention Strategies and Disseminate Strategies (College-Specific and Statewide).* Women, minorities, and nontraditional students were specifically targeted in the CIT marketing campaign. Underrepresented students were showcased in promotional products that were created for marketing of the CIT program. Social media and email campaigns were also utilized to promote and market the Project.

This milestone was completed by the end of Fiscal Year 4, Quarter 1 (December 31, 2016).

*Milestone 3.2.3: Establish IT-Specific Cohort Groups for Underrepresented Populations.* A special help desk program was developed and offered to a specific cohort of women, however, only one individual was able to take part. ITC<sup>2</sup> faculty and staff have continued to work on developing specific cohort groups for underrepresented students.

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

*Milestone 3.2.4: Develop Strategies to Engage Enrolled Students Looking For a Major.* The ITC<sup>2</sup> faculty and Project staff developed/implemented several activities/events to engage current students that have either not decided on or have not declared a major. Activities/events include the creation of a “Nerd Squad” student club where club members can interact with other students in their area, raise money to travel to local IT businesses, and/or travel to or volunteer at local schools. In addition, TedTalks and networking events hosted were open to all students.

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

*Milestone 3.2.5: Redesign IT Curricula to Improve Success of Women, Minorities, and TAA Workers.* A Help Desk Certificate was created to improve the success of women interested in pursuing a career in IT.

This milestone was completed by the end of Fiscal Year 3, Quarter 2 (March 31, 2016).

*Strategy 3.3: Strengthen Articulation from Iowa Western to 4 Year Institutions.*

To facilitate students' transfer to 4-year institutions, articulation agreements between IWCC and the University of Northern Iowa and IWCC and University of Nebraska at Omaha were finalized. Information regarding the articulation agreement and requirements needed to transfer are disseminated to students by advisors, faculty, and Project staff.

This strategy was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

**Priority 4: Improve Collaboration and Alignment between CIT Programs, Workforce System, and Targeted Industry Employers in Southwest Iowa**

*Strategy 4.1: Engage Employers, Business Associations, and Iowa Workforce Development in a Systematic and Meaningful Way*

*Milestone 4.1.1: Engage Industry and IWD Representation on IT Sector Advisory Board.* Representatives from local industry and the Iowa Workforce Development (IWD) were recruited to serve as participants on an IT sector advisory board developed for the CIT program. Participants provide feedback and advice regarding course content, career pathways, competencies needed for IT occupations, and development of new programs.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

*Milestone 4.1.2: Engage Employers to Promote Career Pathways and Lifelong Employee Learning.* IT sector advisory board participants and local employer partners are invited to participate in career fairs and internships hosted by the CIT program. In addition, they are asked to provide industry guidance in the development of new curriculum/course content and to provide feedback regarding the local job market, needed resources and to identify certifications that would benefit students in seeking employment in the IT field.

This milestone was completed by the end of Fiscal Year 3, Quarter 2 (March 31, 2016).

*Milestone 4.1.3: Bi-Annual Meetings and Communication to Gather Input from Industry Partners on Curricula Development and Online Redesign to Ensure Relevancy to Industry.* The IT sector advisory board meets on a bi-annual basis to provide input on curriculum development and make recommendations on equipment purchases, skills and certifications needed by students to be successful.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

*Milestone 4.1.4: Expand Access to Industry and Association Expertise, Resources and Services.* A function of the IT sector advisory board, the internship coordinator, and the Enter IT Projects is to help expand access to industry, providing expertise, resources,

services, and by establishing contacts and relationships with local businesses and industry.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

Milestone 4.1.5: Establish Agreement for Quarterly Participant Employment and Salary Data. A Memorandum of Understanding (MOU) agreement was entered into between IWCC, IWD, and RISE, so that IWD could provide employment and salary data for students identified by RISE to conduct the outcomes analysis.

This milestone was completed by the end of Fiscal Year 2, Quarter 2 (March 31, 2015).

## **Priority 5: Catalyze Innovation and Economic Growth by Increasing the Number of Citizens Exposed to Entrepreneurial Activities and Opportunities**

### *Strategy 5.1: Engage Entrepreneurial Associations, Small Businesses and Workforce Development Systematically*

Milestone 5.1.1: Audit/Align E-Ism Noncredit Curricula into Credit Certificates. Entrepreneurialism non-credit courses were audited and aligned with credit certificates using a new IWCC policy called Credits to Credentials.

This milestone was completed by the end of Fiscal Year 3, Quarter 2 (March 31, 2016).

Milestone 5.1.2: Align and Incorporate E-Ism Activities and Events into IT Programming. The Shared-use Space hosted events on E-ism such as Startup Grind and offered support for entrepreneurs. In addition, entrepreneurialism concepts (e.g., E-ism course units) have been integrated into the CIT curriculum.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

Milestone 5.1.3: Connect Entrepreneurs with IT Students for Problem-Based Learning Experiences; And IT Students with Entrepreneurs for Credit-Based Learning and Internships. The internship coordinator was hired to partner CIT students with local industry/entrepreneurs for students to gain learning experiences and, potentially, employment. Over 40 credit internships and Enter IT Project opportunities (e.g., problem based learning experiences) were completed over the course of the grant.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

Milestone 5.1.4: Develop/Expand Online E-Ism Training and Access. Entrepreneurialism training was developed and incorporated into the revised curriculum and was made available online.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

Milestone 5.1.5: Remodel Shared-Use Space to Speed Start-Up Small Business Launch to Growth. The Shared-use Space, (i.e., The Port) was provided by IWCC and enhanced

through grant purchases (e.g., video conferencing equipment, computers) to be used by students and community members. The Port will be transferred to and managed by the Small Business Development Center when the grant ends.

This milestone was completed by the end of Fiscal Year 3, Quarter 2 (March 31, 2016).

Milestone 5.1.6: Develop/Implement IT in Entrepreneurism Best Practices Conference (Statewide). Three entrepreneur conferences were developed and implemented by the ITC<sup>2</sup> faculty and Project staff:

- Entrepreneur Conference (Mason City, Iowa), Year 1.
- Midwest Educators Forum on Entrepreneurism, Year 2
- Best Practices Conference, Year 3

This milestone was completed by the end of Fiscal Year 3, Quarter 2 (March 31, 2016).

## Summary of ITC<sup>2</sup> Project Evaluation Survey Results

### Student Survey (Fall Administration)

The Student Survey administered in the Fall was completed by 157 students in 2014, 148 students in 2015, and 89 students in 2016. The findings are reported for new CIT students and returning CIT students. Results reported reflect ranges in responses across the three Fall surveys. Specific results for each survey can be found in Appendices B-D.

- Demographics. The majority (75.5% - 88.8%) of students responding to the three Fall semester surveys were male. Most (80.0% - 86.0%) of the students were white, 9.1% - 10.2% were Black or African American, 5.7% - 12.5% were Hispanic/Latino, and .3% - 3.1% were American Indian/Alaskan Native.

A few (3.4% - 8.2%) students indicated that they were considered disabled (in accordance with the Americans with Disabilities Act of 1990) and a few (5.7% - 16.6%) indicated that they were U.S. veterans.

Approximately half (42.0% - 54.1%) of the students indicated that they were eligible to receive Pell Grant assistance and 6.1% - 19.3% were not eligible. The remaining students were either not sure of their eligibility status or did not apply for financial assistance.

- TAA and WIA Eligibility. A few (0.7% - 3.4%) students responding indicated that they were eligible to receive Trade Adjustment Assistance (TAA) and none to a few (0.0% - 1.3%) students indicated that they were Workforce Investment Act (WIA) eligible. The remaining students were either not eligible or not sure of their eligibility status.
- CIT Focus Area. Students' CIT focus areas were distributed between Computers: Application and Web Programming; Application Programming; Computers: Network and

System Administration; Graphic Communications; Computer Science – Programming Concentration; and Computers: Cyber Security.

- *Enrollment and Career Status/Goals.* Overall, students reported that they heard about IWCC from friends (28.9% - 33.0%) or family members (24.8% - 35.2%). Students enrolled at IWCC because it was close to home and because enrolling was perceived by students to be a cost savings measure. Although, students enrolled at IWCC, they did consider attending other nearby institutions (e.g., University of Nebraska – Omaha, Iowa State University, Bellevue University, Metropolitan Community College).

Students enrolled in the CIT program because of their desire to work in the IT field and are interested in strengthening their IT skills. In general, over half of the students responding indicated that they enrolled at IWCC right after high school or after taking a “gap year.” The remaining students indicated that they deferred their enrollment at IWCC for approximately 3 or more years.

Most (56.0% - 62.1%) of the students indicated that their educational goal was to complete an AA/AS degree or earn a diploma; and 34.0% - 45.3% indicated that their educational goal was to transfer to a 4-year institution.

Depending on students’ goals, students expected to enroll in courses anywhere from one to five more semesters. Students responding indicated that this was either their first semester at IWCC and approximately 36.7% - 43.3% of students indicated that they were planning to graduate in approximately 2 years from the time they completed the survey (e.g., Fall 2015 students expected to graduate in May of 2017). Overall, most (72.4% - 80%) of returning students reported that their educational goals had not changed over the past year.

Students continuing in the program reported that they would like internship opportunities, tours of data centers, increase in the number of events such as the Start Up Grind, Nerd Squad, Cyber Defense Competitions, and more hands-on and programming activities.

The detailed report for Fall surveys can be found in Appendices B-D.

### **Student Surveys (Spring Administration)**

The Student Survey administered in Spring was completed by 53 students in 2014, 74 students in 2015, 56 students in 2016, and 56 students in 2017. Summarized results reported in the following section reflect ranges in responses across the four spring surveys. Detailed results for each survey can be found in Appendices E-H.

- *Enrollment.* Between 2014 and 2017, between 34.0% - 43.4% of students responding to surveys each semester indicated that their primary focus area was Network and Support Administration, followed by 15.0% - 28.5% in Application and Web Programming, and 12.5% - 15.0% in Computer Science. Other focus areas reported include Graphic



Communications, Management Information Systems, and Computer Science – Web Development Concentration.

The majority of students (53.6% - 73.7%) responding reported that they had completed two to four semesters at IWCC. Approximately 38.8% - 60.4% of students indicated that they expected to complete at least one to two more semesters of coursework, and 28.3% - 41.1% indicated that they expected complete another three or more semesters of coursework. The majority (71.7% - 82.4%) of students responding have attended straight through without taking any breaks since starting their program at IWCC.

Additional questions regarding Trade Adjustment Assistance (TAA) and Workforce Investment Act (WIA) benefits were included in the final survey. The majority (62.5%) of students reported that they were not TAA nor WIA eligible and 33.9% - 35.7% reported that they were not sure whether they were eligible for these benefits.

- Advising. The majority (87.3% - 97.4%) of students in the CIT program knew their academic advisors. Overall, students predominantly agreed that their advisor was friendly (82.0% - 94.2%), helpful (80.0% - 87.2%), knowledgeable about program requirements (79.6% - 91.3%), knowledgeable about transferring to another college (69.3% - 77.1%), available/accessible (76.5% - 89.6%), and helped students set goals (62.3% - 80.7%).

Overall, most (73.7%-100%) of the students indicated that various IWCC resources were helpful in their efforts to complete their program: financial aid services/counseling, academic advising, supplemental instruction, and workshops.

Most students met with their advisors on a regular basis ranging from at least one meeting per semester to one meeting per week. Overall, most students reported that meeting with advisors lasted between 1-30 minutes with only a few students reporting that meeting lasted longer than 30 minutes.

A few students suggested that the advising process could be improved by increasing the level of contact between the advisor and student, making advising meetings mandatory, and increasing advisors' familiarity with classes.

- Registration Process. In general, students thought that the registration process to sign up for coursework was relatively easy, some students, however, preferred to have help during the process. Students indicated that they thought that the registration process could be improved by adding more classes/sections as well as increasing the number of times courses are offered; providing "better" registration hours, improving navigation needs, and that the system is currently unintuitive.
- Course Evaluation. Overall, students reported that most CIT classes have been helpful in improving the skills they need for employment. The majority (88.4% - 98.1%) of students indicated that in general, their instructors were friendly, helpful, knowledgeable, accessible, and they provided guidance as needed.

- Program and Facilities Evaluation. The majority (82.3% - 100%) of students indicated that they were satisfied with the CIT program overall, the quality of CIT instruction, CIT courses offered, classroom size, and lab space. In general for all four spring semester surveys, students reported that they enjoyed learning about various software programs (e.g., Linux, Visual Studio, Notepad++, Photoshop) taught/used in CIT courses.
- Activities. In general, students rated the various activities offered (e.g., Cyber Defense Competition, data center facility tours, internship opportunities, IT career fairs, mock interviews, and resume review) through the CIT program as being either valuable or very valuable.
- Internships. Over the past four years, approximately one-fifth (18.2% - 24.3%) of the students reported that they had at least one internship opportunity as part of their program. A small few (4.1% - 20.0%) reported that their internship resulted in full time employment.
- Engagement. Approximately 14.5% to 37.8% of students responding reported that they participated in IWCC clubs or organizations ( e.g., Phi Theta Kappa, Nerd Squad, Anime Club, CIT Club, Tech Club) and approximately 17.6% to 30.9% participated in IWCC CIT sponsored events or contests (e.g., Cyber Defense Competition, Career Fairs, Hackathon).

Over half (58.1% - 71.7%) of students responding indicated that they rarely or never miss class and only 25.0% - 37.8% indicated that they occasionally miss class. When students do miss class, they cite illness, not able to get time off, and/or issues with transportation as causes.

- Current Employment/Career Goals. In Spring 2017, the final administration of the student survey, students were asked about their current employment status and about employment goals. Over half (65.5%) of the students reported that they were employed. Of these students, almost half (47.2%) indicated that they were employed in an IT position (e.g., IWCC IT, Best Buy Geek Squad, Proxibid, Atlantic Bottling Co., Godfather's Pizza).

Almost all (88.2%) of the students responding indicated that their goal is to strengthen their IT skills. Students reported that their degree will allow them to get a better job with a different employer, get wage increases, and is needed to get promoted at their current job.

- Valuable Lessons. Students were asked to share lessons learned from their participation in the CIT program. Students indicated that some of the most valuable lessons learned included development of good habits such as organizational skills, using time wisely (e.g., studying, not procrastinating), attending class, working hard and applying themselves, learning how to be successful, learning of different languages/software, and organizational skills.

Students suggested adding more equipment for projects, expanding labs, adding more hands-on projects, more CIT summer and night courses, and making classes more available in order to improve the program.

The detailed reports for Spring surveys can be found in Appendices E-H.

### **Student Internship Survey**

Between Fall 2014 and Spring 2017, students completed the internship survey 35 times after having been placed in various internships that ranged in duration from less than one month to three months or more. The majority (79.3%) of the students reported that they were paid between \$10-\$15 per hour for their work during their internship. Over half of these students were placed through the ITC<sup>2</sup> Internship Coordinator or faculty member and the remaining students were able to find internship opportunities on their own or through other resources.

Almost all students responding to the survey agreed that the internship made them better in the IT field; it improved the IT skills they had prior to the start of the internship; had an impact on them; provided them meaningful insight into the IT field; and experience will be relevant in future employment and class work.

Students varied in their responses regarding the usefulness of the software learned in their coursework noting that they often used different software (e.g., WordPress, Reboot Restore RX, Confluence, GIMP, JIRA, MS SQL) at their internships. While most of these students indicated that the CIT program helped prepare them for the internship, some suggested that they would like to have had help with communication skills, Photoshop basics, and an introduction to WordPress.

Students reported that their internship helped them gain real-world experience and confidence, and improve their communication skills. A couple of students reported that the internship was a challenge because they thought that their coursework was not applicable, that their supervisor did not understand IT, or that there was a lack of communication with the supervisor. Most of the responding students reported that their internship did not lead to employment with their internship site.

A detailed report is available in Appendix I.

### **Internship Supervisor Survey**

The internship supervisors responding to the survey represented various local companies. Two-thirds of internships were initiated by either the ITC<sup>2</sup> Internship Coordinator or by the company. Students' primary responsibilities in their internship included website design/revamp, preparation of marketing brochures/pdfs or programming cash registers.

Overall, internship supervisors agreed that students who completed internships were average to excellent in each area assessed (e.g., arriving to work on time, seeking to increase job

knowledge, using time efficiently, accepting suggestions and criticisms, adapting to change, and using appropriate speech). Most supervisors indicated that they thought students were very well or excellently prepared for their internship. They cited that students had the necessary skills for the internship, they were prepared, and students had a willingness to learn. Challenges for interns included students' low confidence in their abilities, students were not as outgoing as they would have liked, and that students' follow-up was not strong.

The detailed report is available in Appendix J.

### **Employer Partner Surveys**

*Employer Partner Survey (Survey 2014).* A total of seven employer partners responded to the survey. The majority (71.4%) of these partners surveyed reported that they often provide internship or part-time opportunities. However, none of the employer partners responding had taken on any CIT students to date for internships. Some (28.6%) indicated that they might have opportunities available for students in the following year and the remaining partners indicated that they did not know about availability.

In general, internship opportunities are provided year-round, however, the concentration of internships offered occurred during the summer months (i.e., May-August). Employer partners anticipate that internships or part-time opportunities may become available for students that have skills in Networking, Programming, and General IT Support.

Employers partners indicated that help desk technicians/engineers and network engineers were among the highest in-demand IT positions. At their respective companies, employer partners reported that they seek employees with skills that include Cisco Networking, Java, Networking, and Windows Desktop Support and anticipated that the highest in-demand positions will require skills in Cloud Migration, Linux, Networking, Robotics, and Web Developers.

Half (50.0%) of the employer partners responding indicated that they had collaborated with faculty in the CIT program over the past two years. One of the partners reported that they have hired between 11-15 students over the past five years.

Employer partners often provide professional development opportunities to students or their employees. For example, the majority reported that they will pay for tuition or certification fees, provide tours of their facilities, review resumes, or will conduct mock interviews.

The detailed report is available in Appendix K.

*Employer Partner Survey (Spring 2017).* A total of 14 employer partners responded to a survey administered Spring 2017. The majority (92.9%) of employer partners responding have collaborated with CIT faculty/staff over the past two years. Over the past five years, most (66.7%) of the employer partners had hired between 1 and 5 students from the program and one had hired between 11 and 15 students.

Employer Partners responding to the survey indicated that they sometimes pay employee's tuition and/or certification fees, offer company sponsored training, and provide incumbent workers with the flexibility to take coursework. They also assist CIT faculty and students by providing internships, facility tours, participating at career fairs, conducting mock interviews, and by hiring students to work prior to their graduation.

Approximately half of the employer partners responding reported that they also participate in regional Sector Boards and local Advisory Boards. A few reported that they provide curriculum input, help identify occupational needs and help by providing access to their facilities for project meetings/trainings.

Overall, employer partners indicated that the CIT program at IWCC has met or exceeded expectations in producing enough workers to meet hiring needs/demand for workers; making progress in producing quality workers to meet hiring needs/demand for workers; producing students that have the technical skills/abilities required to begin working with minimal training or guidance; and producing students that have the soft skills needed to begin working at their company.

The detailed report is available in Appendix L.

## **Interviews/Surveys**

Interviews with and/or surveys of Project Leadership, Project Team, and faculty were conducted once a year. The following is a summary of interview/survey findings. Please see Appendices M-P for complete results.

### **Project Accomplishments**

*Overall Accomplishments.* In general, Project faculty and staff indicated that the Project has been well worth the efforts exerted to see it through. The Project has been a great benefit to not only students, but to the CIT department, IWCC, and the surrounding community. For example, the ITC<sup>2</sup> Project has allowed the department to:

- purchase new equipment (e.g., servers, virtual desktop infrastructure, laptops) and update and enhance their technology (e.g. simulation of cloud environment)
- purchase academic licenses for key pieces of software
- add more course sections, develop and implement online courses, videos (e.g. webcasts) and weekend programming
- develop and implement of two new programs: Cyber Security and Data Analytics
- host several professional development conferences (e.g., Women in IT Conference, Entrepreneurial Conference).

- provide professional development opportunities (e.g., Cengage Conference, Working Connections, CISSP training, New Horizons trainings, and SCALE Conference) for project leadership/faculty and staff

The IWCC CIT program also received equipment (e.g., servers, racks, and entire systems) from Yahoo, Google, Farm Credit, Atlantic Bottling Company, and others to enhance the ITC<sup>2</sup> Project. In addition, Project faculty and staff were able to leverage the grant to provide additional opportunities to students via career fairs, increased engagement with the community and business partners that included the expansion of an advisory board, workforce development, and an enhanced relationship with the University of Nebraska – Omaha (UNO) to assist with the ITC<sup>2</sup> Cyber Defense Competition, facilitate student transfers, and provide scholarship opportunities for students.

*Impact on Students.* Students have been positively impacted by the ITC<sup>2</sup> Project. They have received assistance in preparing for jobs including: taking professional profile photos, writing cover letters, attending resume workshops, taking part in mock interviews, attending presentations related to job seeking, and identifying and applying for internships. Internships procured through the program could turn into job offers for the students and some students that have gone through the program have been promoted at work because of their advanced training. Students have also been given opportunities to work on certifications and have been able, in certain instances, to receive discounts allowing them to complete the certifications.

Providing students with “real world” experiences has helped students develop the knowledge and higher level skills needed for employment in today’s IT field. These experiences allow students to gain confidence in their skills while making them more desirable to employers. These real-world experiences are made possible because of the purchase of upgraded equipment, access to learn on the new equipment, revised curriculum, online learning opportunities, opportunities afforded through internship and Enter IT opportunities secured through the ITC<sup>2</sup> Project and opportunities to interact with employer partners.

*Impact on Faculty.* Faculty have also been positively impacted by the opportunities afforded through the ITC<sup>2</sup> Project. Faculty have incorporated grant goals and objectives into their everyday activities to the extent that they can no longer differentiate between grant related and non-grant related work. Faculty keep up to date on the latest IT trends through increased opportunities to take part in professional development training (e.g., New Horizons training) and have had greater opportunities to interact and network with students and the community.

Faculty have benefitted from the upgrades/updates made to classrooms and equipment. These upgrades/updates allow faculty to expose students to the leading technology while giving them real world experiences. Faculty have continued to remain current and up-to-date on the latest technology through their participation in various professional development and training opportunities funded by the grant. They have participated in Working Connections conferences and have been actively involved in updating and revising the curriculum, identifying program weaknesses and proving input on needed improvements. Permissions to access the departmental servers/systems were changed to allow faculty access to the systems so that they can deal with

problems or make changes as needed without having to go through IT services. This change was implemented for faculty because they all have the appropriate training/experience needed to access the servers/network and to facilitate teaching and student learning. Other impacts include hiring an additional faculty member and increased interactions with students.

*Impact on the CIT Department and on IWCC.* The Project has had been beneficial for the CIT department and IWCC overall. Project faculty and staff reported that IWCC administrators have a favorable view towards the Project and the work that has been completed to date. The CIT program has experienced an increase in enrollment resulting in more course sections added to accommodate the increased number of students. They have also been successful in finding internships that provide students with real-world experience as well as exposure to different organizations. Other accomplishments include increased access for students interested in pursuing a career in IT through the enhancements/changes made to the course delivery methods (e.g., online courses and recorded videos have been developed and made available to students) and through collaboration between ITC<sup>2</sup> Project faculty/staff and Continuing and Career Education faculty/staff in helping students acquire CIT credits. In particular, faculty reported that they are excited about the continuing education classes and opportunities made available to students. Other accomplishments touted include equipment purchases (e.g., cloud and virtual infrastructure, servers, thin clients), system installations (e.g., software including Adobe Creative Cloud and VMware), and engagement in marketing (e.g., social media, videos).

The CIT program is viewed as a quality program producing quality students. It is often showcased/highlighted by administrators when conducting campus tours. Examples of other positive impacts include:

- IWCC was able to leverage the ITC<sup>2</sup> Project to obtain addition funding from Google and other companies (e.g. Woodmen Life) to enhance their infrastructure and help students with scholarships, internships, and Enter IT Projects.
- The Project has helped to increase the CIT department's presence at IWCC through relationships formed/developed with other IWCC departments (e.g., Continuing Education, IT).
- The Project has helped increase awareness of the CIT department in the community and has provided opportunities for Project faculty and staff to form/develop relationships with the community and local business and industry leaders.
- Increased awareness of the Project has resulted from marketing efforts such as videos, Facebook, YouTube, TedTalks, and career fairs.
- The Project has impacted the college through the expansion of CIT offerings, increased student enrollment and retention, and more tuition dollars resulting from the increase in students.
- The Project has also increased its marketing to non-traditional students which in turn is expected to benefit by taking a more global approach to IT moving forward.

Employer Partners. The Project has a direct impact on employer partners through the increased availability of highly skilled students needed in the workforce. The relationship between the CIT department and employer partners is mutually beneficial. Employer partners sit on advisory committees and sector boards providing input that helps to ensure that students get an experience that meet industry standards (e.g., input on new/revised curriculum, purchase of equipment and software) while increasing the workforce with highly skilled workers. Employer partners provide students with internship opportunities that often lead to offers of employment. They provide Enter IT Projects for students to work on and complete and they often participate in career fairs, review resumes, conduct mock interviews, and conduct tours of their respective businesses.

In addition, the relationships developed with employer partners has helped to foster favorable views of the CIT department among employer partners and the community at large.

### **Challenges**

The Project has succeeded in meeting its goals and objectives despite being faced with several turnovers in key staff (e.g., Project coordinator, intrusive advisor, internship coordinator) over the past four years. Each turnover has affected the Project in different ways, for example, the Project coordinator was let go by upper administration rather than the PIs that resulted in some delays in accomplishing certain tasks. In response, the position was somewhat restructured and an emphasis was placed on marketing when the new Project coordinator was hired. The loss of the intrusive advisor was felt hard by several faculty, however, a decision was made to eliminate the position after it turned over for the second time. Other challenges include:

- Overall changes in college administrators and their unfamiliarity with the Project. There have been at least three different deans since the beginning of the Project resulting in some challenges. These include possible rifts that (1) may have been created between administrators and ITC<sup>2</sup> faculty and staff when the Project coordinator was let go by administration and (2) are related to administrators making decisions about how and whether money is spent on professional development/training.
- Trying to strike a balance between faculty wanting to take advantage of training/professional development opportunities and finding time to do so without taking away from their regular duties.
- The enrollment for women has been relatively flat or slightly lower than what it was at the start of the program despite efforts made by the ITC<sup>2</sup> Project faculty and staff. This lack of an upward trend for women in the program suggests that barriers still exist and that there is a need to overcome them so that women can pursue careers in IT.

### **Sustainability Efforts**

Project Faculty and Staff. Current Project faculty will continue to work in the CIT department at IWCC and will continue to use their experiences and knowledge that resulted from their work on the Project. To date, the internship coordinator and Project secretary will continue in their current positions once the grant ends in September 2017. The internship coordinator will be paid through a different grant and the Project secretary's position will be paid for through the Small Business



Development Center (i.e., formerly “the Port”). The Project coordinator left the position just prior to the end of the grant and will not be filled again.

*Continuation of Project.* Overall, the program, including equipment and software, is expected to be sustainable for the next four or so years. At the end of the four to five years, academic licensing will need to be renewed and equipment will more than likely need to be updated. It is anticipated that some of the equipment will become outdated enough to break and will need to be replaced rather than updated. The grant allowed the CIT department to purchase over \$700,000 worth of equipment/software and will therefore become increasingly difficult to upgrade and/or replace given the cost.

Project directors reported that they are hopeful that employer partners will continue to step in to help sustain the program through donations (e.g., equipment, software), grants (e.g., scholarships), and assistance for students (e.g., participation in career fairs, offering internships). While implementation of the Project has been intense and has involved considerable effort, Project directors are open to seeking grants and other funding opportunities that will continue what has already been implemented, continue to develop and grow as the field grows, and to continue to be accessible for students wishing to pursue a career in IT.

### **DOL TAACCCT Required Research Questions**

The four DOL TAACCCT required questions for the program implementation evaluation were answered through a variety of means including interviews and surveys. The following section is a summary of responses to the four DOL TAACCCT required questions.

#### **How was the particular curriculum selected, used, or created?**

A CIT program curriculum was in place when the ITC<sup>2</sup> Project was initially funded, however, the Project had two primary goals related to the following two priorities.

1. Build stacked and latticed curriculum and developing/enhancing academic career pathways to signature programs.
2. Expand and enhance advanced online and technology-enable learning strategies and formats.

Throughout the grant, project leadership, faculty and staff met with local IT industry representatives/employer partners and their advisory committee to better understand their needs with regards to workers and to help project team members update, align, and/or develop their curriculum to better prepare students with the skills needed for employment in the IT field. New curricula were developed for two new programs created to meet the current and future needs of workers in the field of IT: Cyber Security and Data Analytics.

To accelerate students’ academic and career progress, a new Credit to Credentials curriculum policy was developed and implemented allowing students to earn credit for non-credit courses taken.

To increase access and flexibility, project team members collaborated with a distance learning specialist to develop an online delivery of course content that included video lectures and the ability to make remote connections to computer equipment. In addition to providing a greater flexibility for students, these online courses were also helpful in accommodating growth in the CIT program. Faculty attended professional development opportunities to help them convert their courses into an online format.

### **How were programs and program design improved or expanded using grant funds?**

The CIT program was greatly improved and expanded using grant funds in several ways:

- *CIT Program Curriculum.* The curriculum was updated/enhanced and aligned to meet industry standards as well as ensure that students completing the program are exposed modern coursework along with faculty that have specialized knowledge and expertise.
- *Advanced Online and Technology-Enabled Learning Strategies/Formats.* Working with a distance learning specialist, CIT faculty developed and/or expanded/enhanced advanced online and technology-enabled learning strategies/formats available to students. The addition of online courses and course sections allowed the CIT program to accommodate a growing number of students interested in pursuing an IT career.
- *Creation and Development of Two New Programs.* Two new programs, Cyber Security and Data Analytics, were developed and implemented in 2017.
- *Upgraded Classrooms, Equipment, and Software.* The IT labs/classrooms were upgraded with state-of-the-art technology, equipment, and software purchased with grant funds. These upgrades (i.e., classroom, equipment, software) expose students to the modern technology typically found in the field and help students gain the skills required to obtain employment in the IT field. In addition, the upgrades facilitate student learning by allowing students to make remote connections and engage in virtual learning as needed and it gives students more opportunities to participate in more hands-on projects and activities.
- *Professional Development.* CIT/ITC<sup>2</sup> faculty and staff participated in professional development opportunities that helped faculty and staff expand their knowledge and skills. Professional development topics included: online learning, virtual desktop infrastructure, and entrepreneurial concepts.
- *Development and Implementation of Articulation Agreements.* IWCC finalized articulation agreements with the University of Northern Iowa and the University of Nebraska - Omaha that facilitate students' transfer to these 4-year institutions
- *Creation of a "Shared-Use-Space."* Creation of a "Shared-Use-Space" helped to facilitate distance learning, increase student's access to faculty and other students in the program, and helped small business owners develop their online presence. When the grant ends, the space will be continued to be supported at IWCC by the Iowa Western Small Business Development Center.

- *Contextual Learning Activities and Internships.* Expansion of the program using grant funds has provided students with additional contextual learning activities, job shadowing, and internships. The internship coordinator and faculty have continued to work on identifying local internships for credit so that students may gain “real-world” experience and gain skills needed for a career in IT.
- *Marketing.* ITC<sup>2</sup> marketing efforts helped to increase awareness and visibility of the program to potential students and industry partners.
- *Improved Collaboration and Alignment between CIT program, IWD, and local industry partners.* Expansion of the program included making connections with Iowa Workforce Development, local industry partners and inviting industry/employer partners to join advisory/sector boards.
- *Increased Recruiting and Outreach Efforts of Women and Minorities.* Faculty/staff obtained specialized training in gender and minority outreach, recruitment, and retention. ITC<sup>2</sup> Project staff hosted at least one conference on Women in IT and invited members of other Iowa community colleges to take part in the conference.

**Did the grantees conduct an in-depth assessment of participants’ abilities, skills, and interests to select participants into the grant program?**

An intrusive advisor was hired for the Project to provide enhanced and intensive student services. The ITC<sup>2</sup> intrusive advisor’s role included making connections with students, developing and implementing strategies that promotes student success, and engaging with students proactively to avert situations that may result in students leaving the program. The position of the intrusive advisor was difficult to fill and after a couple of turnovers, it was ultimately decided not to be fill it. The duties were transferred to faculty members with some help from the internship coordinator.

The ITC<sup>2</sup> Project included the expansion of contextualized learning, job shadowing, service learning, internships, and Enter IT Projects for students in the program. To strengthen and broaden the pipeline of skilled workers, an internship coordinator was hired to work with and make connection with both students and local industry/businesses to identify opportunities and internships. The internship coordinator helped students learn and develop soft skills, employment readiness skills, job preparation and job placement. In addition, the internship coordinator provided guidance to students on how to dress and on some occasions helped students secure appropriate clothing.

**What contributions did each of the partners (sector board, employers, workforce system, other training providers and educators, philanthropic organizations, etc.) make towards program design, curriculum development, recruitment, training, placement, program management, leveraging resources, commitment to program sustainability?**

The CIT program and its students benefitted greatly from the connections made with partners (e.g., advisory board, employers, Iowa Workforce Development, Distance Education faculty, providers of professional development) with each partner contributing in different ways.

Representatives from local industry and the Iowa Workforce Development (IWD) were recruited to serve as participants on an IT sector advisory board developed for the CIT program. Participants provided industry guidance in the development of new curriculum/course content, career pathways, and competencies needed for IT occupations. They provided feedback regarding the local job market, needed resources and to identify certifications that would benefit students in seeking employment in the IT field.

Faculty leveraged resources to develop and implement activities and events to further students' careers in IT. For example, activities/events include bringing Google for Entrepreneurs' Startup Grind to campus; hosting TedTalks, Interview Socials, Internship Mixers, career fairs, industry tours, and Cyber Defense Competitions; as well as providing Enter It Project opportunities for students. Employer partners also provide valuable guidance to students by conducting mock interviews, reviewing resumes, and providing opportunities for job shadowing. Through collaborative efforts, faculty and the internship coordinator have also leveraged connections with employer partners to provide internships for credit to their students.

The IWCC CIT program also received equipment (e.g., servers, racks, and entire systems) from Yahoo, Google, Farm Credit, Atlantic Bottling Company, and others to enhance the ITC<sup>2</sup> program.

## OUTCOMES EVALUATION: ITC<sup>2</sup> PROGRAM PARTICIPANTS

A total of 588 unique participants<sup>2</sup> took CIT courses or registered for courses between 2013 and 2017 (see Table 3). Of these students, approximately 500 resided within a 50 mile radius of the IWCC main campus (see Figure 11). Participants within a 50 mile radius included: 126 women, 28 veterans, 125 non-White students, and 229 students that were Pell Grant recipients (see Figures 12 - 15 for geographical representations of residence by type of student and zip code).

*College-Issued Credentials.* By September 30, 2016 (end of Fiscal Year 3), ITC<sup>2</sup> participants had completed a total of 11,385 credit hours (see Table 3). By June 30, 2017 (Fiscal Year 4, Quarter 2), participants in the program residing within a 50 mile radius earned 78 Associate’s degrees, 3 diplomas, and 62 certificates (see Figures 16 - 18 for geographical representations of residence by type of credential earn and zip code).

Table 3.  
*ITC<sup>2</sup> Participant Outcomes for Fiscal Years 1 through 3*

<b>Participant Outcomes</b>	<b>FY1</b>	<b>FY2</b>	<b>FY3</b>
1. Total Participants Served/Enrollees	211	201	188
2. Total Number Who Have Completed a Grant-Funded Program of Study	0	50	37
a. Total Number of Grant-Funded Program of Study Completers Who are Incumbent Workers	0	0	0
3. Total Number Still Retained in Their Programs of Study (or Other Grant-Funded Programs)	211	201	244
4. Total Number Retained in Other Education Program(s)	0	0	24
5. Total Number of Credit Hours Completed (aggregate across all enrollees)	3,258	3,593	4,534
a. Total Number of Students Completing Credit Hours	211	201	188
6. Total Number of Earned Credentials (aggregate across all enrollees)	0	50	41
a. Total Number of Students Earning Certificates – Less Than One Year	0	0	2
b. Total Number of Students Earning Certificates – More Than One Year	0	18	10
c. Total Number of Students Earning Degrees	0	32	29
7. Total Number Pursuing Further Education After Program of Study Completion	0	5	11
8. Total Number Employed After Program of Study Completion	0	28	33
9. Total Number Employed After Retained in Employment After Program of Study Completion	0	0	0
10. Total Number of Those Employed at Enrollment Who Receive a Wage Increase Post-Enrollment	0	0	0

<sup>2</sup> 588 reflects the total number of unique enrolled students as of June 30, 2017.

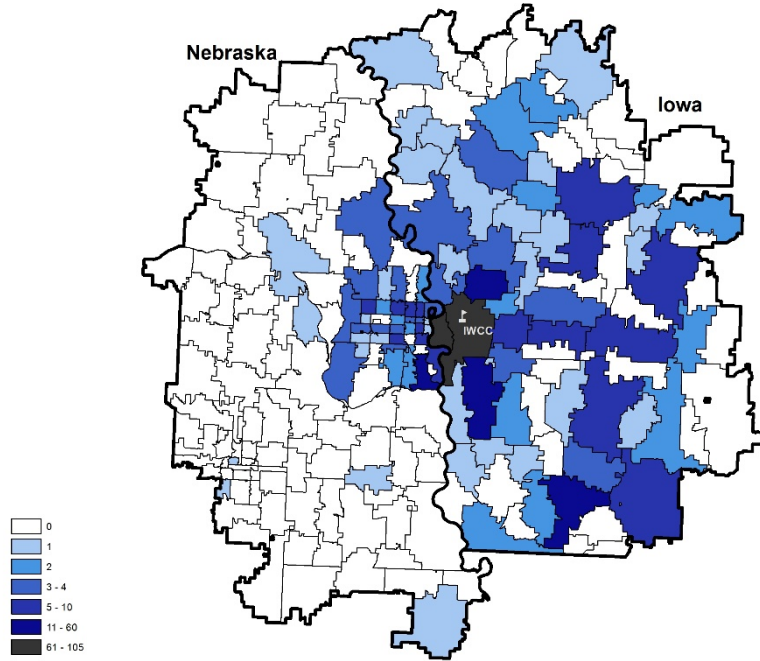


Figure 11. Distribution of all ITC<sup>2</sup> Participants by Zip Code (n=500)

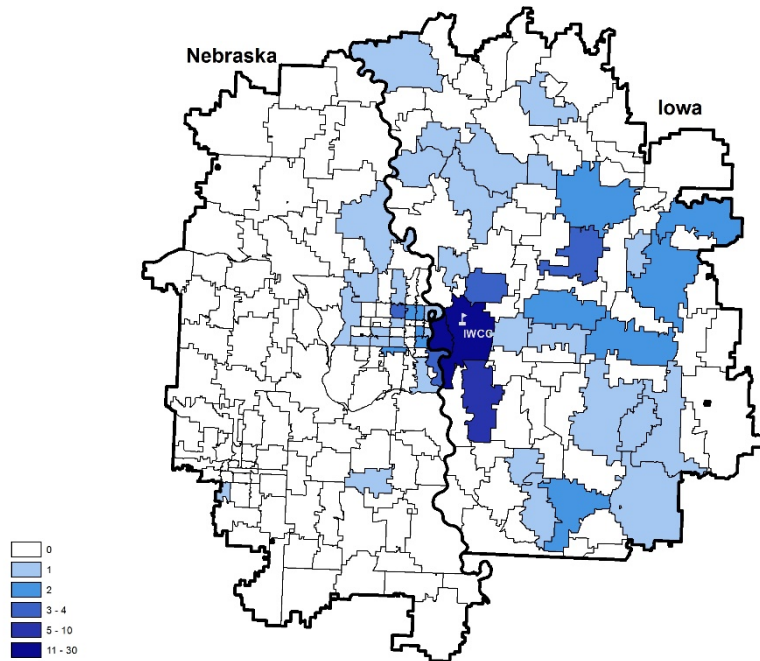


Figure 12. Distribution of Female ITC<sup>2</sup> Participants by Zip Code (n=126)

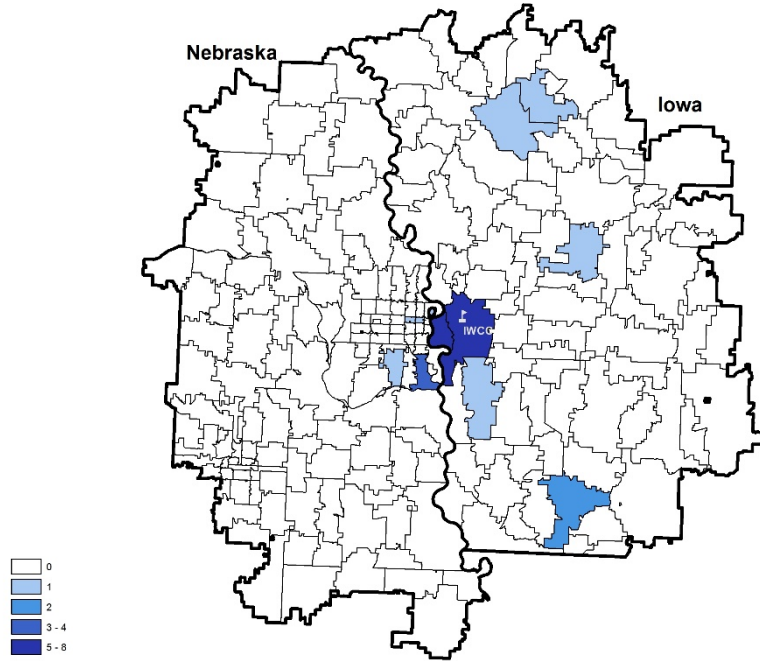


Figure 13. Distribution of ITC<sup>2</sup> Participants with Veteran Status by Zip Code (n=28)

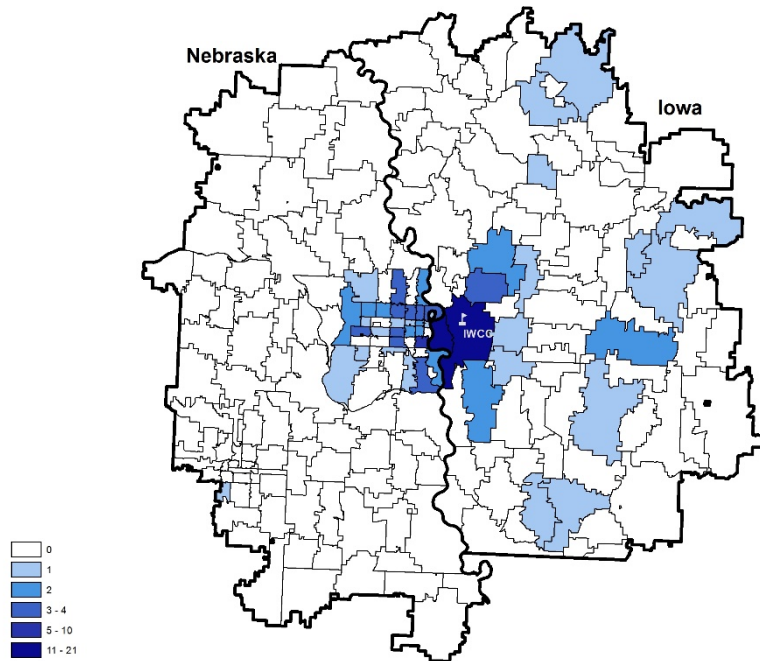


Figure 14. Distribution of Non-White ITC<sup>2</sup> Participants by Zip Code (n=125)

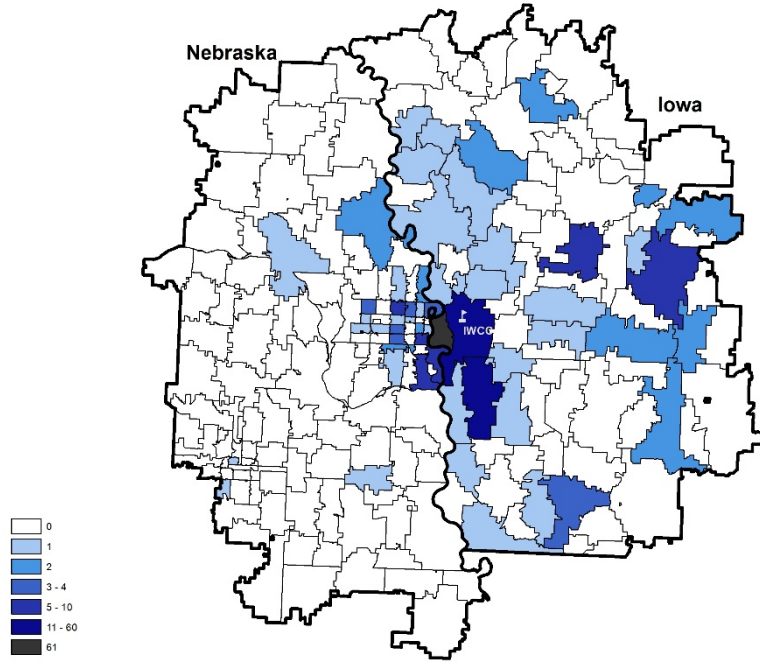


Figure 15. Distribution of ITC<sup>2</sup> Participants with Pell Grants by Zip Code (n=229)

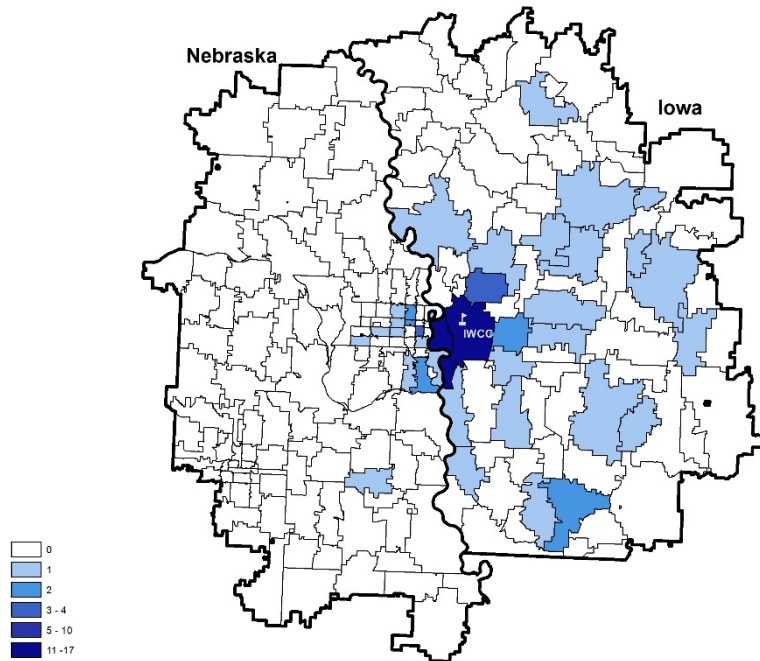


Figure 16. Number of Associate's Degrees Issued by Zip Code (n=78)



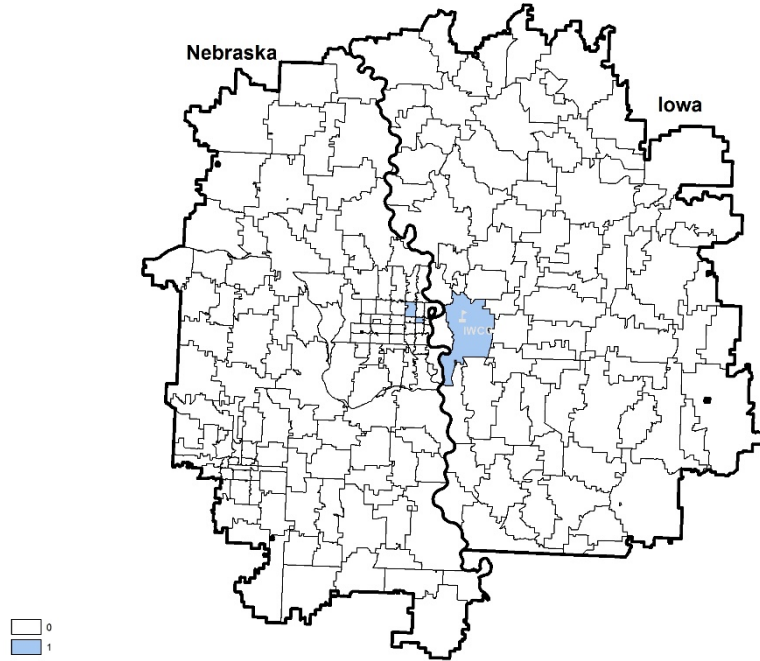


Figure 17. Number of Diplomas Issued by Zip Code (n=3)

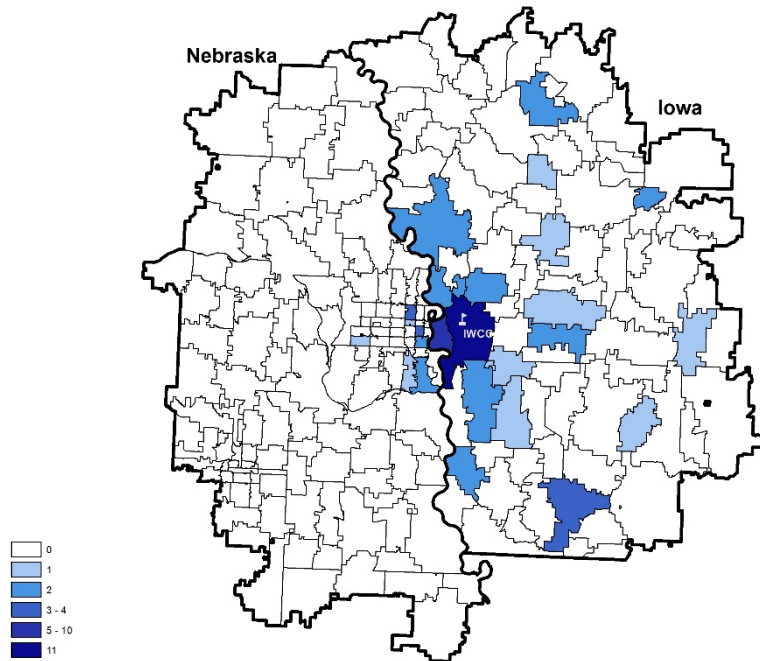


Figure 18. Number of Certificates Issued by Zip Code (n=62)

## **OUTCOMES EVALUATION: METHODOLOGY**

The following section describes the methodology (e.g., research questions, data sources, types of analysis conducted) utilized to conduct the analysis of ITC<sup>2</sup> student/participant outcomes.

### **Comparison of Treatment and Control Groups**

To determine the impact of the ITC<sup>2</sup> Project, examination of participant outcomes utilized a research design approach which included a comparison of two cohorts – a treatment group and a control group. For the purpose of this analysis, the treatment group includes students that enrolled in CIT department courses, as part of the ITC<sup>2</sup> Project, starting in the Fall 2014 semester; and the control group includes students that enrolled in the CIT department courses starting in the Fall 2011 semester. Both groups were followed for two years at IWCC since the majority of the programs within the CIT department end with an Associate's degree.

### **Research Questions**

Because the sample size of the treatment and control groups were small, our analysis was limited to descriptive and inferential statistics. The following research questions were examined in the analysis:

1. What are the demographic characteristics of the IWCC students in the treatment and control groups?
2. Are there statistically significant differences in selected outcomes such as program completion, employment, and wages between the treatment group and control group?

### **Data Sources and Data Sharing**

Participant data required for the analysis were obtained from two different sources: (1) Iowa Western Community College (IWCC) and (2) Iowa Workforce Development (IWD). In order to protect the confidentiality of participant data (e.g., wage data, social security numbers), a secure online data transfer portal was created and a memorandum of understanding (MOU) was developed and signed between IWCC, IWD, and RISE describing the process required for sharing data between agencies. The MOU indicated that treatment and control group participants for the analysis would be selected by the IWCC Project Team based on criteria identified by RISE (see Table 4). The dataset was forwarded to IWD so that they could add quarterly wage data and de-identify the final dataset that was then shared with RISE.

### **Description of Participant Data**

Participant data were obtained for two cohorts, one treatment group consisting of students directly impacted by the ITC<sup>2</sup> Project and one control group that participated in similar programs prior to the start of the ITC<sup>2</sup> Project (see Table 4). It should be noted that the time period requested for the treatment group (see Table 4) was chosen due to time constraints in obtaining data.

Table 4.  
*Participant Data Requested from State Agencies (IWD)*

<b>Students Enrolled in:</b>	<b>Cohort</b>	<b>Semesters Enrolled</b>	<b>Time Period Requested for Wage Data</b>
TAACCCT Funded Computer Information Technology	Treatment Group	Fall 2014 – Spring 2016	Q1, FY 2013 (Jan. 1, 2013) – Q4, FY 2016 (Dec. 31, 2016)
Non-TAACCT Funded Computer Information Technology	Control Group	Fall 2011 – Spring 2013	Q1, FY 2010 (Jan. 1, 2010) – Q4, FY 2013 (Dec. 31, 2013)

*Note:* Q = Quarter; FY = Fiscal Year  
 Quarterly wage data and industry codes provided by IWD  
 Demographic data and educational records provided by IWCC

### **Longitudinal Analysis**

Participant data was analyzed at two time points specified for each cohort:

- *Time 1:* One full quarter just prior to participant enrollment during the period specified for each cohort (see Table 4).
- *Time 2:* Second full quarter following four semesters/two years of enrollment within the period specified for each cohort (time it takes to receive an Associate’s degree plus one quarter; see Table 4).

### **Median versus Mean Wage Data Analysis**

Whether to use median wages or mean wages in the analysis presented an issue given that both of these measures of central tendency can be affected the by shape of the distribution. Results of tests for the difference in median wages were very similar (e.g., skewness, p-value) to results of tests for the difference (e.g., t-tests) in mean wage. Therefore, mean wage data were used in the analysis presented in this report. It should be noted that all participants with reported wages (including participants that earned “\$0” wages) at any time analyzed were included in the tests for the difference in means and tests for the difference in medians analysis. Quarterly wage data is reported for this analysis.

### **Descriptive and Inferential Analysis**

Descriptive and inferential statistics were conducted on the treatment and control groups. Descriptive statistics include demographic data (e.g., age, race, sex, etc.) on both the treatment and control groups. Inferential statistics (i.e., t-tests) were conducted on participants’ wage data at all times analyzed to determine whether there were any significant differences in wages between the treatment and control groups. In particular, both median and mean wage differences were examined to determine differences between the groups.

## OUTCOMES EVALUATION: FINDINGS

### Participants

*Treatment Group Participants.* A total of 258 participants enrolled in *ITC<sup>2</sup> funded* CIT programs between Fall 2014 and Spring 2015 were included in the treatment group dataset provided by IWCC and IWD. After review of the data, approximately 20% of the participants were retained in the treatment group because they met the following criteria for being in the treatment group: (1) participants enrolled in the ITC<sup>2</sup> funded CIT programs in Fall 2014, (2) participants were residents of Iowa (wage data are available only for Iowa residents), (3) wage data reports were available for participants for the duration of the time-period requested. Demographic characteristics of treatment group participants are presented in Table 5.

*Control Group Participants.* A total of 96 control group participants enrolled in CIT programs between Fall 2011 and Spring 2012 were included in the control group dataset provided by IWCC and IWD. After a review of the data, approximately 51% of the participants were retained in the control group because they met the following criteria for being in the control group: (1) participants were residents of Iowa, (2) wage data reports were available for participants for the duration of the time-period requested and (3) participants were enrolled in the CIT program and working towards a CIT award. Demographic characteristics of control group participants are presented in Table 5. It should be noted that the difference in “attrition” between the treatment and control participant cohorts may reflect the time/periodicity of when the data were collected.

Table 5.  
*Participant Demographic Characteristics and CIT Program Area by Group*

Program	Treatment (n = 52)	Control (n = 49)
<i>Demographic Characteristics</i>		
Age (Range)	18-47	18-57
Male (%)	76.9	75.5
White (%)	92.3	89.8
Disabled (%)	7.7	18.4
Pell Grant eligible (%)	57.7	49.0
Employed at Time 1 (%)	69.2	57.1
<i>CIT Program Area</i>		
Computer Science (%)	26.9	51.0
Computers: Network and System Administration (%)	21.2	14.3
Computers: Management Information Systems (%)	5.8	4.1
Computers: Application and Web Programming (%)	25.0	10.2
Graphic Communications (%)	21.2	20.4

Treatment and control group participants by their CIT program are presented in Table 5. Treatment group participants were somewhat evenly distributed across four (i.e., Computer Science, Computers: Network and System Administration, Computers: Application and Web Programming, and Graphic Communications) of the five CIT program areas. In contrast, half of the control group participants were in Computer Science with the remaining participant distributed across Graphic Communications, Computers: Network and System Administration and Computers: Application and Web Programming.

## Outcomes Analysis

Table 6.  
*Educational Outcomes by Treatment and Control Group Participants*

	Treatment		Control		Differences		<i>t</i>
	Mean	SD	Mean	SD	Mean	SD	
Highest Award Earned	0.85	1.33	0.51	1.12	0.34	0.25	1.37
Number of Certificates Awarded	0.10	0.30	NA	NA	0.10	0.04	2.33* <sup>1</sup>
Number of Associate's Degrees Awarded	0.17	0.38	0.12	0.33	0.05	0.07	0.71
Number of Jobs Held at Time 2	0.65	0.68	0.71	0.58	-0.06	0.12	-0.48

Note: \* p-value < 0.05;

<sup>1</sup>Significant result is based on a one-sample t-test of the treatment group compared to a group with 0 certificates.

*Educational Outcomes.* T-tests analyses were conducted to compare whether there were significant differences in highest award earned, number of awards earned, and jobs held, between treatment and control group participants (see Table 6). While differences were not statistically significant, results indicate that participants in the treatment group were more likely to have earned a higher degree and to have earned an Associate's Degree than participants in the control group. Some participants in the treatment group earned certificates; in contrast, participants in the control group did not earn certificates.

*Job Outcomes.* There was no difference in the average number of jobs held by participants in the treatment and control groups (see Table 7)

Table 7.  
*Number of Jobs Held by Treatment and Control Group Participants*

	Treatment		Control		Differences		<i>t</i>
	Mean	SD	Mean	SD	Mean	SD	
Number of Jobs Held at Time 2	0.65	0.68	0.71	0.58	-0.06	0.12	-0.48

*Quarterly Wage Outcomes.* Analyses were conducted to examine the impact of the ITC<sup>2</sup> Project on participants. T-tests analyses were conducted to determine whether there were differences in reported quarterly wages between participants in the treatment and control groups at Time 1 and Time 2. Results indicate that at Time 1, participants in the treatment group **had** higher quarterly wages and earning approximately \$900 more in reported quarterly wages than participants in the control group (after adjusting control group wages for inflation; see Table 8, Figure 19).

While not statistically significant, participants in the control group had higher reported quarterly wages at Time 2 and earning \$125 more in reported quarterly wages than participants in the treatment group. In addition, while control group participants had a notably larger change in reported quarterly wages between Time 1 and Time 2 than participants in the treatment group, the change was not statistically significant (see Table 8, Figure 19). Caution should be taken in interpreting these results given that participants in the treatment group may have moved to neighboring states for work (i.e., wage data not available) or they may have continued their education at a 4-year institution (i.e., wages would be less than expected).

Table 8.  
*Quarterly Wages by Group at Times 1 and 2*

	Treatment		Control		Differences		
	Mean	SD	Mean	SD	Mean	SD	<i>t</i>
<i>Between Groups</i>							
Wages at Time 1	1916.37	2938.17	982.02	1258.00	934.35	445.32	2.10*
Wages at Time 2	2358.15	2662.23	2483.56	2677.54	-125.41	531.52	-0.24
<i>Within Groups</i>							
Difference in Wages between Time 1 and Time 2	441.79	4059.75	1501.54	2607.35	-1059.76	675.05	-1.57

Note: \* p-value < 0.05

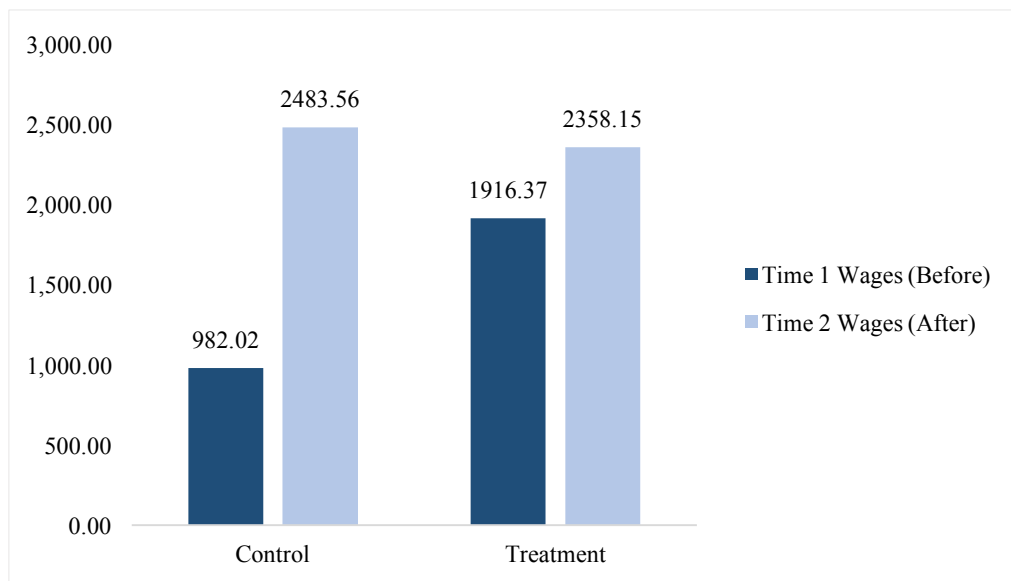


Figure 19. Average Quarterly Wages for Treatment and Control Group Participants at Time 1 (Before) and Time 2 (After)

*Educational and Wage Outcomes for Non-Incumbent Workers.* Analyses were conducted to determine whether there were any differences in reported quarterly wages between non-incumbent workers (i.e., did not hold a job at Time 1) in the treatment group and non-incumbent workers in the control group.

While non-incumbent workers in the treatment group were more likely to obtain a higher degree, to have more certificates and Associate’s degrees awarded, hold at least one job at Time 2, and were more likely to have higher reported wages at Time 2 than non-incumbent workers in the control group, the differences were not statistically significant (see Table 9).

Table 9.  
*Educational Outcomes by Non-Incumbent Workers in Treatment and Control Groups*

	Treatment		Control		Differences		
	Mean	SD	Mean	SD	Mean	SD	<i>t</i>
Highest Award	0.67	1.23	0.50	1.10	0.17	0.40	0.42
Number of Certificates Awarded	0.07	0.26	0.00	0.00	0.07	0.07	1.00
Number of Associate’s Degrees Awarded	0.13	0.35	0.10	0.31	0.03	0.11	0.30
Number of Jobs Held at Time 2	0.87	0.74	0.65	0.49	0.22	0.21	1.04
Wages at Time 2	2614.95	2353.76	2097.01	2261.89	517.95	786.05	0.66

Note: Treatment: *n*=15; Control: *n*=20

*Educational and Wage Outcomes for Incumbent Workers.* Analyses were also conducted to determine whether there were any differences in reported quarterly wages between incumbent workers (i.e., did hold a job at Time 1) in the treatment group and incumbent workers in the control group (see Table 10).

While incumbent workers in the treatment group were more likely to obtain a higher degree, to have more Associate’s degrees awarded, hold at least one job at Time 1, and were more likely to have higher reported wages at Time 1 than incumbent workers in the control group, the differences were not statistically significant. However, incumbent workers in the treatment group were significantly more likely to earn a certificate than incumbent workers in the control group (see Table 10). Additionally, while not significant, incumbent workers in the control group were more likely to hold more jobs at Time 2, have higher reported quarterly wages at Time 2, and have a higher gain in wages between Time 1 and Time 2.

Table 10.  
*Comparison of Incumbent Workers in Treatment and Control Groups*

	Treatment		Control		Differences		
	Mean	SD	Mean	SD	Mean	SD	<i>t</i>
Highest Award	0.92	1.38	0.52	1.15	0.40	0.31	1.29
Number of Certificates Awarded	0.11	0.31	NA	NA	NA	NA	2.09* <sup>2</sup>
Number of Associate's Degrees Awarded	0.19	0.40	0.14	0.35	0.05	0.09	0.55
Number of Jobs Held at Time 1	1.11	0.32	1.07	0.26	0.04	0.07	0.54
Number of Jobs Held at Time 2	0.57	0.65	0.76	0.64	-0.19	0.16	-1.20
Wages at Time 1	2693.27	3174.79	1659.27	1244.63	1034.00	570.82	1.81
Wages at Time 2	2254.04	2801.33	2750.14	2939.06	-496.10	709.91	-0.70
Difference in Wages between Time 1 and Time 2	-439.23	4292.89	1090.88	2784.70	-1530.10	919.95	-1.66

*Note:* \* p-value < 0.05; Treatment: *n*=37; Control: *n*=29; <sup>2</sup> Significant result is based on a one-sample t-test of the treatment group compared to a group with 0 certificates.

## Limitations

*Sample Size.* The sample size of available participants limits the types of analyses that can be conducted, the results, and interpretation of the results. For example, student data (e.g., demographic, employment) for analysis were limited to student variables available from the IWCC student database and wage data provided by IWD where quite a few of the cases had missing values and/or missing variables. In some cases, students may have had missing wage data if they were enrolled in CIT courses but resided or worked in a neighboring state (e.g., Nebraska).

*Data Collection Period.* Analyses of wage and educational data were limited to time available to track students in the treatment group. For example, Iowa wage data are certified and available six months following the close of a quarter limiting the time period that wage data can be requested for completion of the report.

The longest period of time that a cohort of students could be followed upon completion of an Associate's degree was six months (e.g., two quarters). This limited the information available regarding whether students in either the treatment or control group chose to continue their education (e.g., transferred to a 4-year institution) or whether they chose to enter the workforce. Therefore, it is possible that students may have decided to continue their education and put off seeking either full or part-time employment or that students may have taken longer to finish their programs, which in turn would have an effect on reported quarterly wages. There may have also been a subset of students that required more than the six months after completion of their award to find or secure a job and there are students that may have secured a job in a neighboring state.



## CONCLUSIONS

Overall, the project leadership, faculty and staff have been successful in developing and implementing the ITC<sup>2</sup> Project. The CIT program is expected to be sustainable for at least four years after the grant ends in September 2017 and the program is expected to continue to expand and grow in its capacity to serve students.

### **Accomplishments**

*Completion of Priorities and Milestones.* Project leadership, faculty, and staff completed all of the ITC<sup>2</sup> Project priorities and milestones. For example, with input from local industry partners, the curriculum was updated; articulation agreements to facilitate transfer between IWCC and University of Nebraska - Omaha and University of Northern Iowa were finalized; the CIT program's online presence was expanded and enhanced, new courses and class sections were made available online; collaboration between CIT faculty and local industry partners were developed/enhanced; and the program purchased state-of-the-art equipment and software.

*Impact on Students.* Between 2013 and 2017, a total of 588 participants were enrolled at IWCC and took CIT courses. A total of 11,385 credit hours were completed by students within the first three years of the Project, and by June 30, 2017, students in the CIT program had earned 83 Associate's degrees, 3 diplomas, and 66 certificates.

Students have benefitted from the development of new programs (e.g., Cyber Security, Data Analytics) and courses and the enhancement of curricula that increases student opportunities for hands-on projects, real world experiences, internships, and learning that involves modern equipment and software that students are likely to use in their careers. Students benefitted from guidance and support provided as they prepared for jobs, including professional profile photos, resume workshops, cover letter help, mock interviews, and how to dress.

*Impact on the CIT Program and Faculty.* Faculty and staff have been positively impacted by the opportunities afforded through the ITC<sup>2</sup> Project. Upgrades/updates allow faculty to expose students to the leading technology while giving them real world experiences. Faculty have continued to remain current and up-to-date on the latest technology through their participation in various professional development and training opportunities funded by the grant.

The CIT program has experienced an increase in enrollment resulting in more course sections added to accommodate the increased number of students. They have also been successful in finding internships that provide students with real-world experiences as well as exposure to different organizations. Other accomplishments include increased access for students interested in pursuing a career in IT through the enhancements/changes made to their course delivery methods (e.g., online courses and recorded videos have been developed and made available to students) and through collaboration between ITC<sup>2</sup> Project faculty/staff and Continuing and Career Education faculty/staff in helping students acquire CIT credits. Other accomplishments include equipment purchases (e.g., cloud and virtual infrastructure, servers, thin clients), system installations (e.g., software including Adobe Creative Cloud and VMware), and engagement in marketing (e.g., social media, videos).

*Connections with Local Industry/Employer Partners.* The Project has had a direct impact on employer partners through the increased availability of highly skilled students needed in the workforce. The relationship between the CIT department and employer partners is mutually beneficial. Employer partners sit on advisory committees and sector boards providing input that helps to ensure that students get an experience that meet industry standards (e.g., input on new/revised curriculum, purchase of equipment and software) while increasing the workforce with highly skilled workers. Employer partners provide students with internship opportunities that often lead to offers of employment. They also provide Enter IT Projects for students to work on and complete and they often participate in career fairs, review resumes, conduct mock interviews, and conduct tours of their respective businesses.

In addition, the relationships developed with employer partners has helped to foster favorable views of the CIT department among employer partners and the community at large.

### **Challenges and Sustainability**

*Staff Turnover.* The Project has succeeded in meeting its goals and objectives despite being faced with several turnovers in key staff (e.g., Project coordinator, intrusive advisor, internship coordinator) over the past four years. Each turnover has affected the Project in different ways. For example, the Project coordinator was let go by upper administration rather than the PIs that resulted in some delays in accomplishing certain tasks. In response, the position was somewhat restructured and an emphasis was placed on marketing when a new Project coordinator was hired. Additionally, the loss of the intrusive advisor was deeply felt by several faculty, however, a decision was made to eliminate the position after it turned over for the second time.

*Women in IT.* The enrollment for women has been relatively flat or slightly lower than what it was at the start of the program despite efforts made by the ITC<sup>2</sup> Project faculty and staff. This lack of an upward trend for women in the program suggests that barriers still exist and that there is a need to overcome them so that women can pursue careers in IT.

*Continuation of Project.* Current Project faculty will continue to work in the CIT department at IWCC and will continue to use their experiences and knowledge that resulted from their work on the Project. To date, the internship coordinator and Project secretary will continue in their current positions once the grant ends in September 2017.

Overall, the program, including equipment and software, is expected to be sustainable for the next four or so years. At the end of the four to five years, academic licensing will need to be renewed and equipment will more than likely need to be updated. It is anticipated that some of the equipment will become outdated enough to break and will need to be replaced rather than updated. The grant allowed the CIT department to purchase over \$700,000 worth of equipment/software and will therefore become increasingly difficult to upgrade and/or replace given the cost.

Project directors reported that they are hopeful that employer partners will continue to step in to help sustain the program through donations (e.g., equipment, software), grants (e.g., scholarships), and assistance for students (e.g., participation in career fairs, offering internships).

While implementation of the Project has been intense and has involved considerable effort, Project directors are open to seeking grants and other funding opportunities that will continue what has already been implemented, continue to develop and grow as the field grows, and to continue to be accessible for students wishing to pursue a career in IT.

## REFERENCES

- Bureau of Labor Statistics. (2016-17). *Occupational Outlook Handbook, 2016-17 Edition*. Retrieved from <http://www.bls.gov/ooh/>.
- Iowa Workforce Development. (2012). *Iowa Experiencing Shortage of Middle Skilled Workers* [Press release]. Retrieved from <https://www.iowaworkforcedevelopment.gov/iowa-experiencing-shortage-middle-skilled-workers>.
- Kemis, M. & Walker, D. (2000). The a-e-I-o-u approach to program evaluation. *Journal of College Student Development, 41*(1), 119-122.



## **Appendices**



**Appendix A:**

**Tracking Milestone Completion Evaluation Report:  
Spring 2017**

## INTRODUCTION AND METHODOLOGY

The Iowa Western Community College (IWCC) Information Technology – Credentials to Careers (ITC<sup>2</sup>) grant identifies Project activities/milestones, along with the timeframe and deliverables expected to be completed with funding from the U.S. Department of Labor (DOL) Trade Adjustment Assistance Community College and Career Training (TAACCCT) program. To evaluate whether IWCC successfully met these milestones, RISE staff regularly reviewed each quarterly report submitted to DOL by the IWCC Project director.

### Milestone Tables

To track progress made in completing each milestone specified in the grant, RISE staff created a milestone table for each year of the grant (see Tables 1, 2, 3, and 4). Progress made in completing milestones was updated on a quarterly basis and data were compiled and reported annually and in aggregate using each of the 14 quarterly reporting cycles for the final report. Data utilized for the milestone tables encompasses activities from Fiscal Year 1, Quarter 1 (starting October 1, 2013) through Fiscal Year 4, Quarter 2 (ending March 31, 2017).

### Reading Milestone Tables

Milestone tables indicate the overall progress made in meeting the milestones *by strategy* (shown in grey, see Tables 1-4) by fiscal year. The tables also indicate the progress made in completing specific milestones (i.e., P = In Progress, C = Completed) by fiscal year. The table also indicated the overall progress in meeting milestones *by priority* (shown in grey, see Tables 1-4) by the end of each fiscal year.

## COMPLETION OF PRIORITIES/MILESTONES RESULTS

The following section describes the specific progress made by IWCC on completion of each priority and milestone. Overall, IWCC has completed all priorities: Priorities 1, 2, and 3 were completed by the end of the second quarter in Fiscal Year 4 (March 31, 2017) and Priorities 4 and 5 were completed by the end of Fiscal Year 3 (September 30, 2016).

### Priority 1: Build Stacked and Latticed Curriculum and Academic Career Pathways in Signature Programs

#### Strategy 1.1: Redesign Curricula for Customized, Portable, Stacked, and Latticed Industry Credentials, Diplomas, Degrees and Transfer Programs

**Milestone 1.1.1: Hire and Train New Staff and Faculty.** All positions were filled and staff were trained by end of Fiscal Year 2, Quarter 1 (December 31, 2014). The Project has experienced several staff turnovers (e.g., program coordinator, internship coordinator, intrusive advisor) since the start of the Project. While most of the positions were filled following each turnover, a decision was made to close the intrusive advisor position due to difficulty in finding qualified individuals.

This milestone was completed by the end of Fiscal Year 2, Quarter 1 (December 31, 2014).

***Milestone 1.1.2: Redesign and Add New Curricula and Realign with Industry-Recognized Credentials.*** Throughout the grant, Project staff met with local IT industry representatives to better understand their needs with regards to workers and to help IWCC's ITC<sup>2</sup> Project staff update, align, and/or develop their curriculum to better prepare students with the skills needed for employment in the IT field.

Examples of new curriculum and redesign include:

- Two new programs were created because of the grant: (a) Cyber Security, which began in the Fall 2016 semester, and (b) Data Analytics, which began in the Fall 2017 semester.
- A new Credit to Credentials policy on curriculum was developed and implemented that allows students to earn credit for non-credit courses taken.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 1.1.3: Develop, Mapped and Streamlined Entry and Exit Points to Accelerate Academic and Career Progress, From Non-Credit to Credit, From Certificate to Degree.*** The CIT department collaborated with other IWCC departments to increase the number of available entry and exit points. Facilitation of streamlined entry and exit points include the following examples:

- Addition of non-credit to credit pathways
- Use of prior learning assessments (e.g., military transcripts)
- Mapping (cross checking competencies) Continuing Education to the CIT department
- Offering evening and weekend courses beginning in Fall 2017

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

***Milestone 1.1.4: Establish Third Party Evaluation, Data Collection and Analysis.*** The Research Institute for Studies in Education (RISE) was hired in Fiscal Year 1, Quarter 2 to complete the third-party evaluation. A detailed evaluation plan (as required by the grant) was developed in June 2014 and implemented by RISE. RISE staff maintained regular contact with ITC<sup>2</sup> Project staff, collected data as described in the detailed evaluation plan and made at least one site visit annually.

This milestone is ongoing through September 30, 2017 and will be completed with submission of the third-party final report.

***Milestone 1.1.5: Expand 2+2 Agreements with 4 Year Institutions and Disseminate to Students.*** To facilitate students' transfer to 4-year institutions, articulation agreements between IWCC and the University of Northern Iowa and IWCC and University of



Nebraska at Omaha were finalized. Information regarding the articulation agreement and requirements needed to transfer are disseminated to students by advisors, faculty, and Project staff.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 1.1.6: Five Hands-On Projects to Validate Non-Credit to Credit Learning Competencies.*** A distance learning specialist was hired in November 2014 to complete five hands-on projects validating non-credit to credit learning. Four of the five required hands-on projects were developed by the end of Fiscal Year 3, Quarter 2 (March 31, 2016). The remaining hands-on project was developed and all hands-on projects were available by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

## **Priority 2: Expand and Enhance Advanced Online and Technology-Enabled Learning Strategies and Formats**

### **Strategy 2.1: Expand and Enhance Customized Advanced Online and Technology-Enabled Learning**

***Milestone 2.1.1: Develop Online and Blended Options for IT Certificate and Degree Programming.*** A distance learning specialist, along with faculty, collaborated to develop online delivery of course content. Development of blended and online course options included video lectures and the ability to make remote connections to computer equipment.

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

***Milestone 2.1.2: Upgrade Education and Training Facilities and College Infrastructure to Ensure Distance Learning Availability and Increase Student Access.*** A “Shared-use Space” was created to facilitate distance learning and to increase students’ access to faculty as well as access to other students. In addition to the “Shared-use Space,” various upgrades and/or changes were made to improve and facilitate distance learning. Examples include:

- Virtual desktop infrastructure/equipment
- Private cloud infrastructure/equipment
- Camera/Audio
- Whiteboards
- Computer equipment (e.g., monitors, servers, zero clients)

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

***Milestone 2.1.3: Upgrade IT Lab, NETLAB, and Classrooms for Real-Time, Virtual Learning.*** The IT Lab was upgraded with new equipment. In addition, virtual desktop and private cloud infrastructure/equipment, thin clients, and kernel-based virtual machines to be used for virtual and distance learning were purchased.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone: 2.1.4: Establish Shared-Use Space.*** By the end of the first year of implementation, the Shared-Use-Space (“The Port”), was mostly fully functional with only minor equipment and repairs needed. The Shared-Use Space was utilized by students and the community and is intended to serve as a place for enhancing an entrepreneurial environment. The Shared-Use Space will be sustained beyond the end of the grant and will be maintained by the IWCC Small Business Development Center.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 2.1.5: Develop Contextualized Learning Activities and Internships.*** The Internship Coordinator was primarily responsible for making connections and coordinating internship and contextualized learning opportunities for students with community stakeholders. With the assistance of the Internship Coordinator, over 40 students completed credit internships as part of their CIT program. Examples of contextualized learning activities provided for students included organizing tours of local data centers and help desk facilities. In addition, CIT students can access “Enter IT” Projects that match IT student interns with small businesses, entrepreneurs, and non-profits that have limited resources to spend on computing systems.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

## **Strategy 2.2: Expand Staff Knowledge and Skills to Provide Customized Programming to Build Capacity and Meet Workforce Needs**

***Milestone: 2.2.1: Implement Staff Development – Workshops, Webinars, Trainings, Conferences, Including Annual Working Connections IT Conference (Statewide).***

Faculty and staff developed, implemented and participated in various staff development meetings, workshops, and conferences over the course of the grant (e.g., the “Working Connections” IT conference [held multiple times], a “Women in IT” conference [held once]). Faculty also participated in various professional development/training on topics that included: online learning, virtual desktop infrastructure, and entrepreneurial concepts.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 2.2.2: Faculty Obtain Specialized Certificates to Provide Cutting-Edge Training.*** Over the course of the grants, various faculty obtained certifications or participated in trainings for iQuery, Windows 10, VMware, Google App Classroom integration, web development, CISSP, Cengage, Nexpose Certified Administrator, and Metasploit Pro Certified Specialist.

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

***Milestone 2.2.3: Train Faculty/Staff in Gender and Minority Outreach, Recruitment and Retention.*** Faculty and staff participated in specialized training in gender and minority outreach. For example, faculty and staff attended workshops and training that focused on women in STEM, women in IT, and recruiting and retaining women in IT fields.

This milestone was completed by the end of Fiscal Year 3, Quarter 4 (September 30, 2016).

***Milestone 2.2.4: Establish Industry-Based Externship Placement Opportunities for Faculty.*** ITC<sup>2</sup> faculty and Project staff had trouble establishing industry-based externship opportunities for students given various security issues at local companies. To compensate, faculty and staff worked directly with local industry to determine local industry needs and with regards to IT skills they seek when recruiting workers. In addition, one faculty member provided consulting services to local industry and one faculty member works with local industry by helping them build their websites.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 2.2.5: Coordinate Annual Training to Increase Women and Minorities in IT Programs and Careers (Statewide).*** The first Women in IT conference was held in September 2014 (Fiscal Year 1, Quarter 4). The “Women in IT” conference was originally intended to occur annually, however, staffing changes among ITC<sup>2</sup> Project staff led to the postponement of the conference.

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

### **Priority 3: Strengthen and Broaden the Pipeline of Skilled Workers for Iowa’s Information Technology In-Demand Occupations**

#### **Strategy 3.1: Develop a Plan for Contextualized Learning and Workplace Skill Development**

***Milestone 3.1.1: Expand Contextualized Learning, Job Shadowing, Service Learning, Internships.*** The ITC<sup>2</sup> internship coordinator worked with local industry/businesses to identify and place more than 40 students in internships and more than 30 students in service learning (e.g., “Enter IT” projects) opportunities.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 3.1.2: Provide Soft Skills, Job Preparation, and Job Placement Support.*** Students worked with the ITC<sup>2</sup> internship coordinator to identify credit internships that provided opportunities to learn soft skills and employment readiness skills. In addition, to assisting with internship placement, the internship coordinator also provided job preparation and job placement assistance. Both the internship coordinator and the

intrusive advisor assisted students with their soft skills, provided guidance to students on how to dress and on some occasions helped students secure appropriate clothing.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 3.1.3: Develop/Implement IT Career Exploration Experiences, Activities and Events.*** ITC<sup>2</sup> faculty and Project staff developed and implemented various activities and events to further students' careers in IT exploration. Some activities/events include bringing Google for Entrepreneurs' Startup Grind to campus; hosting TedTalks Interview Socials, Internship Mixers, career fairs, industry tours, Cyber Defense competition; as well as providing Enter It Project opportunities for students.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 3.1.4: Development of Foundational Through Advanced Technical ITS Knowledge/Skills.*** To help students develop foundational through advanced IT skills, ITC<sup>2</sup> faculty and staff placed students in various internship opportunities and hosted activities/events, various informational socials, site tours, Enter IT Project opportunities, and community events. In addition, development of foundational/advanced knowledge/skills were enhanced with equipment (e.g., 3D printers) and courses (e.g., Desktop Practicum).

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

### **Strategy 3.2: Utilize Marketing and Advising Strategies to Build Capacity by Increasing Numbers of Underrepresented Populations**

***Milestone: 3.2.1: Hire/Train Advising Staff (Navigator) and Marketing Coordinator.***

An intrusive advisor and a project/marketing coordinator were hired during the first year of the grant. Both positions experienced turnover that subsequently resulted in the intrusive advisor not be filled after Year 2 of the Project.

This milestone was completed by the end of Fiscal Year 2, Quarter 1 (December 31, 2014).

***Milestone 3.2.2: Implement Specialized IT Marketing, Outreach/Recruitment/Retention Strategies and Disseminate Strategies (College-Specific and Statewide).***

Women, minorities, and nontraditional students were specifically targeted in the CIT marketing campaign. Underrepresented students were showcased in promotional products that were created for marketing of the CIT program. Social media and email campaigns were also utilized to promote and market the Project.

This milestone was completed by the end of Fiscal Year 4, Quarter 1 (December 31, 2016).

***Milestone 3.2.3: Establish IT-Specific Cohort Groups for Underrepresented Populations.*** A special help desk program was developed and offered to a specific cohort of women, however, only one individual was able to take part. ITC<sup>2</sup> faculty and staff

have continued to work on developing specific cohort groups for underrepresented students.

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

***Milestone 3.2.4: Develop Strategies to Engage Enrolled Students Looking For a Major.***

The ITC<sup>2</sup> faculty and Project staff developed/implemented several activities/events to engage current students that have either not decided on or have not declared a major. Activities/events include the creation of a “Nerd Squad” student club where club members can interact with other students in their area, raise money to travel to local IT businesses, and/or travel to or volunteer at local schools. In addition, TedTalks and networking events hosted were open to all students.

This milestone was completed by the end of Fiscal Year 4, Quarter 2 (March 31, 2017).

***Milestone 3.2.5: Redesign IT Curricula to Improve Success of Women, Minorities, and TAA Workers.*** A Help Desk Certificate was created to improve the success of women interested in pursuing a career in IT.

This milestone was completed by the end of Fiscal Year 3, Quarter 2 (March 31, 2016).

**Strategy 3.3: Strengthen Articulation from Iowa Western to 4 Year Institutions.**

To facilitate students’ transfer to 4-year institutions, articulation agreements between IWCC and the University of Northern Iowa and IWCC and University of Nebraska at Omaha were finalized. Information regarding the articulation agreement and requirements needed to transfer are disseminated to students by advisors, faculty, and Project staff.

This strategy was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

**Priority 4: Improve Collaboration and Alignment between CIT Programs, Workforce System, and Targeted Industry Employers in Southwest Iowa**

**Strategy 4.1: Engage Employers, Business Associations, and Iowa Workforce Development in a Systematic and Meaningful Way**

***Milestone 4.1.1: Engage Industry and IWD Representation on IT Sector Advisory Board.*** Representatives from local industry and the Iowa Workforce Development (IWD) were recruited to serve as participants on an IT sector advisory board developed for the CIT program. Participants provide feedback and advice regarding course content, career pathways, competencies needed for IT occupations, and development of new programs.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 4.1.2: Engage Employers to Promote Career Pathways and Lifelong Employee Learning.*** IT sector advisory board participants and local employer partners are invited to participate in career fairs and internships hosted by the CIT program. In

addition, they are asked to provide industry guidance in the development of new curriculum/course content and to provide feedback regarding the local job market, needed resources and to identify certifications that would benefit students in seeking employment in the IT field.

This milestone was completed by the end of Fiscal Year 3, Quarter 2 (March 31, 2016).

***Milestone 4.1.3: Bi-Annual Meetings and Communication to Gather Input from Industry Partners on Curricula Development and Online Redesign to Ensure Relevancy to Industry.*** The IT sector advisory board meets on a bi-annual basis to provide input on curriculum development and make recommendations on equipment purchases, skills and certifications needed by students to be successful.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 4.1.4: Expand Access to Industry and Association Expertise, Resources and Services.*** A function of the IT sector advisory board, the internship coordinator, and the Enter IT Projects is to help expand access to industry, providing expertise, resources, services, and by establishing contacts and relationships with local businesses and industry.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 4.1.5: Establish Agreement for Quarterly Participant Employment and Salary Data.*** A Memorandum of Understanding (MOU) agreement was entered into between IWCC, IWD, and RISE, so that IWD could provide employment and salary data for students identified by RISE to conduct the outcomes analysis.

This milestone was completed by the end of Fiscal Year 2, Quarter 2 (March 31, 2015).

## **Priority 5: Catalyze Innovation and Economic Growth by Increasing the Number of Citizens Exposed To Entrepreneurial Activities and Opportunities**

### **Strategy 5.1: Engage Entrepreneurial Associations, Small Businesses and Workforce Development Systematically**

***Milestone 5.1.1: Audit/Align E-Ism Noncredit Curricula into Credit Certificates.*** Entrepreneurialism non-credit courses were audited and aligned with credit certificates using a new IWCC policy called Credits to Credentials.

This milestone was completed by the end of Fiscal Year 3, Quarter 2 (March 31, 2016).

***Milestone 5.1.2: Align and Incorporate E-Ism Activities and Events into IT Programming.*** The Shared-use Space hosted events on E-ism such as Startup Grind and offered support for entrepreneurs. In addition, entrepreneurialism concepts (e.g., E-ism course units) have been integrated into the CIT curriculum.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 5.1.3: Connect Entrepreneurs with IT Students for Problem-Based Learning Experiences; And IT Students with Entrepreneurs for Credit-Based Learning and Internships.*** The internship coordinator was hired to partner CIT students with local industry/entrepreneurs for students to gain learning experiences and, potentially, employment. Over 40 credit internships and Enter IT Project opportunities (e.g., problem based learning experiences) were completed over the course of the grant.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 5.1.4: Develop/Expand Online E-Ism Training and Access.***

Entrepreneurialism training was developed and incorporated into the revised curriculum and was made available online.

This milestone was completed by the end of Fiscal Year 3, Quarter 3 (June 30, 2016).

***Milestone 5.1.5: Remodel Shared-Use Space to Speed Start-Up Small Business Launch to Growth.*** The Shared-use Space, (i.e., The Port) was provided by IWCC and enhanced through grant purchases (e.g., video conferencing equipment, computers) to be used by students and community members. The Port will be transferred to and managed by the Small Business Development Center when the grant ends.

This milestone was completed by the end of Fiscal Year 3, Quarter 2 (March 31, 2016).

***Milestone 5.1.6: Develop/Implement IT in Entrepreneurism Best Practices Conference (Statewide).*** Three entrepreneur conferences were developed and implemented by the ITC<sup>2</sup> faculty and Project staff:

- Entrepreneur Conference (Mason City, Iowa), Year 1.
- Midwest Educators Forum on Entrepreneurism, Year 2
- Best Practices Conference, Year 3

This milestone was completed by the end of Fiscal Year 3, Quarter 2 (March 31, 2016).

Table 1. Milestone Progress (continued onto the next page). Fiscal Year 1, Quarter 4 (Q3 2014; September 30, 2014).

<b>Priorities, Strategies, and Milestones</b>	<b>Status</b>
<i>Priority 1: Build Stacked and Latticed Curriculum and Academic Career Pathways in Signature Programs</i>	<i>IP Y1</i>
Strategy 1: Redesign Curricula for Customized, Portable, Stacked and Latticed Industry Credentials, Diplomas, Degrees, and Transfer Programs	IP Y1
Milestone 1: Hire and train new staff and faculty	IP Q4
Milestone 2: Redesign and add new curricula and realign with industry-recognized credentials	IP Q4
Milestone 3: Develop, mapped and streamlined entry and exit points to accelerate academic and career progress, from non-credit to credit, from certificate to degree	IP Q4
Milestone 4: Establish Third Party evaluation, data collection and analysis	IP Q4
Milestone 5: Expand 2+2 agreements with 4 year institutions and disseminate to students	IP Q4
Milestone 6: 5 hands-on projects to validate non-credit to credit learning competencies	IP Q4
<i>Priority 2: Expand and Enhance Advanced Online and Technology-Enabled Learning Strategies and Formats</i>	<i>IP Y1</i>
Strategy 1: Expand and Enhance Customized Advanced Online and Technology-Enabled Learning	IP Y1
Milestone 1: Develop online and blended options for IT certificate and degree programming	IP Q4
Milestone 2: Upgrade education and training facilities and college infrastructure to ensure distance learning availability and increase student access	IP Q4
Milestone 3: Upgrade IT lab, NETLAB and classrooms for real-time, virtual learning	IP Q4
Milestone 4: Established shared-use space	IP Q4
Milestone 5: Develop contextualized learning activities and internships	IP Q4
Strategy 2: Expand Staff Knowledge and Skills to Provide Customized Programming to Build Capacity and Meet Workforce Needs	IP Y1
Milestone 1: Implement staff development – workshops, webinars, training, conferences, including annual Working Connections IT conference (statewide)	IP Q4
Milestone 2: Faculty obtain specialized certificates to provide cutting-edge training	IP Q4
Milestone 3: Train faculty/staff in gender and minority outreach, recruitment and retention	IP Q4
Milestone 4: Establish industry-based externship placement opportunities for faculty	IP Q4
Milestone 5: Coordinate annual training to increase women and minorities IT programs and careers (statewide)	IP Q4
<i>Priority 3: Strengthen and Broaden the Pipeline of Skilled Workers for Iowa’s Information Technology In-demand Occupations</i>	<i>IP Y1</i>
Strategy 1: Develop a plan for Contextualized Learning and Workplace Skill Development	IP Y1
Milestone 1: Expand contextualized learning, job shadowing, service learning, internships	IP Q4
Milestone 2: Provide soft skills, job preparation, and job placement support	IP Q4
Milestone 3: Develop/implement IT career exploration experiences, activities, and events	IP Q4
Milestone 4: Development of foundational through advanced technical IT knowledge/skills	IP Q4



Strategy 2: Utilize Marketing and Advising Strategies to Build Capacity by Increasing Numbers of Underrepresented Populations	IP Y1
Milestone 1: Hire/train advising staff (Navigator) and Marketing Coordinator	IP Q4
Milestone 2: Implement specialized IT marketing, outreach/recruitment/retention strategies and disseminate strategies (college-specific and statewide)	IP Q4
Milestone 3: Establish IT-specific cohort groups for underrepresented populations	IP Q4
Milestone 4: Develop strategies to engage enrolled students looking for a major	IP Q4
Milestone 5: Redesign IT curricula to improve success of women, minorities, TAA workers	IP Q4
Strategy 3: Strengthen articulation from Iowa Western to 4-year institutions	IP Y1
<i>Priority 4: Improve Collaboration and Alignment between CIT Programs, Workforce System and Targeted Industry Employers in Southwest Iowa</i>	<i>IP Y1</i>
Strategy 1: Engage employers, business associations, and Iowa Workforce Development in a systematic and meaningful way	IP Y1
Milestone 1: Engage industry and IWD representation on IT Sector Advisory Board	IP Q4
Milestone 2: Engage employers to promote career pathways and lifelong employee learning	IP Q4
Milestone 3: Bi-annual meetings and communication to gather input from industry partners on curricula development and online redesign to ensure relevancy to industry	ND
Milestone 4: Expand access to industry and association expertise, resources, and services	ND
Milestone 5: Establish agreement for quarterly participant employment and salary data	IP Q4
<i>Priority 5: Catalyze Innovation and Economic Growth by Increasing the Number of Citizens Exposed to Entrepreneurial Activities and Opportunities</i>	<i>IP Y1</i>
Strategy 1: Engage entrepreneurial associations, small businesses, and workforce development systematically	IP Y1
Milestone 1: Audit/align E-ism noncredit curricula into credit certificates	IP Q4
Milestone 2: Align and incorporate E-ism activities and events into IT programming	IP Q4
Milestone 3: Connect entrepreneurs with IT students for problem based learning experiences; and IT students with entrepreneurs for credit based learning and internships	IP Q4
Milestone 4: Develop/expand online E-ism training and access	ND
Milestone 5: Remodel shared-use space to speed start-up small business launch to growth	IP Q4
Milestone 6: Develop/implement IT in Entrepreneurism Best Practices Conference (statewide)	IP Q4

Key: C = Completed, P = In Progress, ND = No Data/No Report

Q1 = October – December; Q2 = January – March; Q3 = April – June; Q4 = July – September

Y1 = Fiscal Year 1 (10/2013 – 09/2014); Y2 = Fiscal Year 2 (10/2014 – 09/2015); Y3 = Fiscal Year 3 (10/2015 – 09/2016); Y4 = Fiscal Year 4 (10/2016 – 09/2017)

Table 2. Milestone Progress (continued onto the next page). Fiscal Year 2, Quarter 4 (Q3 2015; September 30, 2015).

<b>Priorities, Strategies, and Milestones</b>	<b>Status</b>
<i>Priority 1: Build Stacked and Latticed Curriculum and Academic Career Pathways in Signature Programs</i>	<i>IP Y2</i>
Strategy 1: Redesign Curricula for Customized, Portable, Stacked and Latticed Industry Credentials, Diplomas, Degrees, and Transfer Programs	IP Y2
Milestone 1: Hire and train new staff and faculty	C Q1
Milestone 2: Redesign and add new curricula and realign with industry-recognized credentials	IP Q4
Milestone 3: Develop, mapped and streamlined entry and exit points to accelerate academic and career progress, from non-credit to credit, from certificate to degree	IP Q4
Milestone 4: Establish Third Party evaluation, data collection and analysis	IP Q4
Milestone 5: Expand 2+2 agreements with 4 year institutions and disseminate to students	IP Q4
Milestone 6: 5 hands-on projects to validate non-credit to credit learning competencies	IP Q4
<i>Priority 2: Expand and Enhance Advanced Online and Technology-Enabled Learning Strategies and Formats</i>	<i>IP Y2</i>
Strategy 1: Expand and Enhance Customized Advanced Online and Technology-Enabled Learning	IP Y2
Milestone 1: Develop online and blended options for IT certificate and degree programming	IP Q4
Milestone 2: Upgrade education and training facilities and college infrastructure to ensure distance learning availability and increase student access	IP Q4
Milestone 3: Upgrade IT lab, NETLAB and classrooms for real-time, virtual learning	IP Q4
Milestone 4: Established shared-use space	IP Q4
Milestone 5: Develop contextualized learning activities and internships	IP Q4
Strategy 2: Expand Staff Knowledge and Skills to Provide Customized Programming to Build Capacity and Meet Workforce Needs	IP Y2
Milestone 1: Implement staff development – workshops, webinars, training, conferences, including annual Working Connections IT conference (statewide)	IP Q4
Milestone 2: Faculty obtain specialized certificates to provide cutting-edge training	IP Q4
Milestone 3: Train faculty/staff in gender and minority outreach, recruitment and retention	IP Q4
Milestone 4: Establish industry-based externship placement opportunities for faculty	IP Q4
Milestone 5: Coordinate annual training to increase women and minorities IT programs and careers (statewide)	IP Q4
<i>Priority 3: Strengthen and Broaden the Pipeline of Skilled Workers for Iowa’s Information Technology In-demand Occupations</i>	<i>IP Y2</i>
Strategy 1: Develop a plan for Contextualized Learning and Workplace Skill Development	IP Y2
Milestone 1: Expand contextualized learning, job shadowing, service learning, internships	IP Q4
Milestone 2: Provide soft skills, job preparation, and job placement support	IP Q4
Milestone 3: Develop/implement IT career exploration experiences, activities, and events	IP Q4
Milestone 4: Development of foundational through advanced technical IT knowledge/skills	IP Q4

Strategy 2: Utilize Marketing and Advising Strategies to Build Capacity by Increasing Numbers of Underrepresented Populations	IP Y2
Milestone 1: Hire/train advising staff (Navigator) and Marketing Coordinator	C Q1
Milestone 2: Implement specialized IT marketing, outreach/recruitment/retention strategies and disseminate strategies (college-specific and statewide)	IP Q4
Milestone 3: Establish IT-specific cohort groups for underrepresented populations	IP Q4
Milestone 4: Develop strategies to engage enrolled students looking for a major	IP Q4
Milestone 5: Redesign IT curricula to improve success of women, minorities, TAA workers	IP Q4
Strategy 3: Strengthen articulation from Iowa Western to 4-year institutions	IP Y2
<i>Priority 4: Improve Collaboration and Alignment between CIT Programs, Workforce System and Targeted Industry Employers in Southwest Iowa</i>	IP Y2
Strategy 1: Engage employers, business associations, and Iowa Workforce Development in a systematic and meaningful way	IP Y2
Milestone 1: Engage industry and IWD representation on IT Sector Advisory Board	IP Q4
Milestone 2: Engage employers to promote career pathways and lifelong employee learning	IP Q4
Milestone 3: Bi-annual meetings and communication to gather input from industry partners on curricula development and online redesign to ensure relevancy to industry	IP Q4
Milestone 4: Expand access to industry and association expertise, resources, and services	IP Q4
Milestone 5: Establish agreement for quarterly participant employment and salary data	C Q2
<i>Priority 5: Catalyze Innovation and Economic Growth by Increasing the Number of Citizens Exposed to Entrepreneurial Activities and Opportunities</i>	IP Y2
Strategy 1: Engage entrepreneurial associations, small businesses, and workforce development systematically	IP Y2
Milestone 1: Audit/align E-ism noncredit curricula into credit certificates	IP Q4
Milestone 2: Align and incorporate E-ism activities and events into IT programming	IP Q4
Milestone 3: Connect entrepreneurs with IT students for problem based learning experiences; and IT students with entrepreneurs for credit based learning and internships	IP Q4
Milestone 4: Develop/expand online E-ism training and access	ND
Milestone 5: Remodel shared-use space to speed start-up small business launch to growth	IP Q4
Milestone 6: Develop/implement IT in Entrepreneurism Best Practices Conference (statewide)	IP Q4

Key: C = Completed, P = In Progress, ND = No Data/No Report

Q1 = October – December; Q2 = January – March; Q3 = April – June; Q4 = July – September

Y1 = Fiscal Year 1 (10/2013 – 09/2014); Y2 = Fiscal Year 2 (10/2014 – 09/2015); Y3 = Fiscal Year 3 (10/2015 – 09/2016); Y4 = Fiscal Year 4 (10/2016 – 09/2017)

Table 3. Milestone Progress (continued onto the next page). Fiscal Year 3, Quarter 4 (Q3 2016; September 30, 2016).

<b>Priorities, Strategies, and Milestones</b>	<b>Status</b>
<i>Priority 1: Build Stacked and Latticed Curriculum and Academic Career Pathways in Signature Programs</i>	<i>IP Y3</i>
Strategy 1: Redesign Curricula for Customized, Portable, Stacked and Latticed Industry Credentials, Diplomas, Degrees, and Transfer Programs	IP Y3
Milestone 1: Hire and train new staff and faculty	C Y2
Milestone 2: Redesign and add new curricula and realign with industry-recognized credentials	C Q3
Milestone 3: Develop, mapped and streamlined entry and exit points to accelerate academic and career progress, from non-credit to credit, from certificate to degree	IP Q4
Milestone 4: Establish Third Party evaluation, data collection and analysis	C Q3
Milestone 5: Expand 2+2 agreements with 4 year institutions and disseminate to students	C Q3
Milestone 6: 5 hands-on projects to validate non-credit to credit learning competencies	IP Q4
<i>Priority 2: Expand and Enhance Advanced Online and Technology-Enabled Learning Strategies and Formats</i>	<i>IP Y3</i>
Strategy 1: Expand and Enhance Customized Advanced Online and Technology-Enabled Learning	IP Y3
Milestone 1: Develop online and blended options for IT certificate and degree programming	IP Q4
Milestone 2: Upgrade education and training facilities and college infrastructure to ensure distance learning availability and increase student access	IP Q4
Milestone 3: Upgrade IT lab, NETLAB and classrooms for real-time, virtual learning	C Q3
Milestone 4: Established shared-use space	C Q3
Milestone 5: Develop contextualized learning activities and internships	C Q3
Strategy 2: Expand Staff Knowledge and Skills to Provide Customized Programming to Build Capacity and Meet Workforce Needs	IP Y3
Milestone 1: Implement staff development – workshops, webinars, training, conferences, including annual Working Connections IT conference (statewide)	C Q3
Milestone 2: Faculty obtain specialized certificates to provide cutting-edge training	IP Q4
Milestone 3: Train faculty/staff in gender and minority outreach, recruitment and retention	C Q4
Milestone 4: Establish industry-based externship placement opportunities for faculty	C Q3
Milestone 5: Coordinate annual training to increase women and minorities IT programs and careers (statewide)	IP Q4
<i>Priority 3: Strengthen and Broaden the Pipeline of Skilled Workers for Iowa’s Information Technology In-demand Occupations</i>	<i>IP Y3</i>
Strategy 1: Develop a plan for Contextualized Learning and Workplace Skill Development	C Y3
Milestone 1: Expand contextualized learning, job shadowing, service learning, internships	C Q3
Milestone 2: Provide soft skills, job preparation, and job placement support	C Q3
Milestone 3: Develop/implement IT career exploration experiences, activities, and events	C Q3
Milestone 4: Development of foundational through advanced technical IT knowledge/skills	C Q3

Strategy 2: Utilize Marketing and Advising Strategies to Build Capacity by Increasing Numbers of Underrepresented Populations	IP Y3
Milestone 1: Hire/train advising staff (Navigator) and Marketing Coordinator	C Y2
Milestone 2: Implement specialized IT marketing, outreach/recruitment/retention strategies and disseminate strategies (college-specific and statewide)	IP Q4
Milestone 3: Establish IT-specific cohort groups for underrepresented populations	IP Q4
Milestone 4: Develop strategies to engage enrolled students looking for a major	IP Q4
Milestone 5: Redesign IT curricula to improve success of women, minorities, TAA workers	C Q2

Strategy 3: Strengthen articulation from Iowa Western to 4-year institutions	IP Y3
--	-------

<i>Priority 4: Improve Collaboration and Alignment between CIT Programs, Workforce System and Targeted Industry Employers in Southwest Iowa</i>	<i>C Y3</i>
---	-------------

Strategy 1: Engage employers, business associations, and Iowa Workforce Development in a systematic and meaningful way	C Y3
Milestone 1: Engage industry and IWD representation on IT Sector Advisory Board	C Q3
Milestone 2: Engage employers to promote career pathways and lifelong employee learning	C Q2
Milestone 3: Bi-annual meetings and communication to gather input from industry partners on curricula development and online redesign to ensure relevancy to industry	C Q3
Milestone 4: Expand access to industry and association expertise, resources, and services	C Q3
Milestone 5: Establish agreement for quarterly participant employment and salary data	C Y2

<i>Priority 5: Catalyze Innovation and Economic Growth by Increasing the Number of Citizens Exposed to Entrepreneurial Activities and Opportunities</i>	<i>C Y3</i>
---	-------------

Strategy 1: Engage entrepreneurial associations, small businesses, and workforce development systematically	C Y3
Milestone 1: Audit/align E-ism noncredit curricula into credit certificates	C Q2
Milestone 2: Align and incorporate E-ism activities and events into IT programming	C Q3
Milestone 3: Connect entrepreneurs with IT students for problem based learning experiences; and IT students with entrepreneurs for credit based learning and internships	C Q3
Milestone 4: Develop/expand online E-ism training and access	C Q3
Milestone 5: Remodel shared-use space to speed start-up small business launch to growth	C Q2
Milestone 6: Develop/implement IT in Entrepreneurism Best Practices Conference (statewide)	C Q2

Key: C = Completed, P = In Progress

Q1 = October – December; Q2 = January – March; Q3 = April – June; Q4 = July – September

Y1 = Fiscal Year 1 (10/2013 – 09/2014); Y2 = Fiscal Year 2 (10/2014 – 09/2015); Y3 = Fiscal Year 3 (10/2015 – 09/2016); Y4 = Fiscal Year 4 (10/2016 – 09/2017)

Table 4. Milestone Progress (continued onto the next page). Fiscal Year 4, Quarter 4 (Q3 2017; September 30, 2017).

<b>Priorities, Strategies, and Milestones</b>	<b>Status</b>
<i>Priority 1: Build Stacked and Latticed Curriculum and Academic Career Pathways in Signature Programs</i>	<i>C Y4</i>
Strategy 1: Redesign Curricula for Customized, Portable, Stacked and Latticed Industry Credentials, Diplomas, Degrees, and Transfer Programs	C Y4
Milestone 1: Hire and train new staff and faculty	C Y2
Milestone 2: Redesign and add new curricula and realign with industry-recognized credentials	C Y3
Milestone 3: Develop, mapped and streamlined entry and exit points to accelerate academic and career progress, from non-credit to credit, from certificate to degree	C Q2
Milestone 4: Establish Third Party evaluation, data collection and analysis	C Y3
Milestone 5: Expand 2+2 agreements with 4 year institutions and disseminate to students	C Y3
Milestone 6: 5 hands-on projects to validate non-credit to credit learning competencies	C Q2
<i>Priority 2: Expand and Enhance Advanced Online and Technology-Enabled Learning Strategies and Formats</i>	<i>C Y4</i>
Strategy 1: Expand and Enhance Customized Advanced Online and Technology-Enabled Learning	C Y4
Milestone 1: Develop online and blended options for IT certificate and degree programming	C Q2
Milestone 2: Upgrade education and training facilities and college infrastructure to ensure distance learning availability and increase student access	C Q2
Milestone 3: Upgrade IT lab, NETLAB and classrooms for real-time, virtual learning	C Y3
Milestone 4: Established shared-use space	C Y3
Milestone 5: Develop contextualized learning activities and internships	C Y3
Strategy 2: Expand Staff Knowledge and Skills to Provide Customized Programming to Build Capacity and Meet Workforce Needs	C Y4
Milestone 1: Implement staff development – workshops, webinars, training, conferences, including annual Working Connections IT conference (statewide)	C Y3
Milestone 2: Faculty obtain specialized certificates to provide cutting-edge training	C Q2
Milestone 3: Train faculty/staff in gender and minority outreach, recruitment and retention	C Y3
Milestone 4: Establish industry-based externship placement opportunities for faculty	C Y3
Milestone 5: Coordinate annual training to increase women and minorities IT programs and careers (statewide)	C Q2
<i>Priority 3: Strengthen and Broaden the Pipeline of Skilled Workers for Iowa’s Information Technology In-demand Occupations</i>	<i>C Y4</i>
Strategy 1: Develop a plan for Contextualized Learning and Workplace Skill Development	C Y3
Milestone 1: Expand contextualized learning, job shadowing, service learning, internships	C Y3
Milestone 2: Provide soft skills, job preparation, and job placement support	C Y3
Milestone 3: Develop/implement IT career exploration experiences, activities, and events	C Y3
Milestone 4: Development of foundational through advanced technical IT knowledge/skills	C Y3

Strategy 2: Utilize Marketing and Advising Strategies to Build Capacity by Increasing Numbers of Underrepresented Populations	C Y4
Milestone 1: Hire/train advising staff (Navigator) and Marketing Coordinator	C Y2
Milestone 2: Implement specialized IT marketing, outreach/recruitment/retention strategies and disseminate strategies (college-specific and statewide)	C Q1
Milestone 3: Establish IT-specific cohort groups for underrepresented populations	C Q2
Milestone 4: Develop strategies to engage enrolled students looking for a major	C Q2
Milestone 5: Redesign IT curricula to improve success of women, minorities, TAA workers	C Y3
Strategy 3: Strengthen articulation from Iowa Western to 4-year institutions	C Y4
Priority 4: Improve Collaboration and Alignment between CIT Programs, Workforce System and Targeted Industry Employers in Southwest Iowa	C Y3
Strategy 1: Engage employers, business associations, and Iowa Workforce Development in a systematic and meaningful way	C Y3
Milestone 1: Engage industry and IWD representation on IT Sector Advisory Board	C Y3
Milestone 2: Engage employers to promote career pathways and lifelong employee learning	C Y3
Milestone 3: Bi-annual meetings and communication to gather input from industry partners on curricula development and online redesign to ensure relevancy to industry	C Y3
Milestone 4: Expand access to industry and association expertise, resources, and services	C Y3
Milestone 5: Establish agreement for quarterly participant employment and salary data	C Y2
Priority 5: Catalyze Innovation and Economic Growth by Increasing the Number of Citizens Exposed to Entrepreneurial Activities and Opportunities	C Y3
Strategy 1: Engage entrepreneurial associations, small businesses, and workforce development systematically	C Y3
Milestone 1: Audit/align E-ism noncredit curricula into credit certificates	C Y3
Milestone 2: Align and incorporate E-ism activities and events into IT programming	C Y3
Milestone 3: Connect entrepreneurs with IT students for problem based learning experiences; and IT students with entrepreneurs for credit based learning and internships	C Y3
Milestone 4: Develop/expand online E-ism training and access	C Y3
Milestone 5: Remodel shared-use space to speed start-up small business launch to growth	C Y3
Milestone 6: Develop/implement IT in Entrepreneurism Best Practices Conference (statewide)	C Y3

Key: C = Completed, P = In Progress

Q1 = October – December; Q2 = January – March; Q3 = April – June; Q4 = July – September

Y1 = Fiscal Year 1 (10/2013 – 09/2014); Y2 = Fiscal Year 2 (10/2014 – 09/2015); Y3 = Fiscal Year 3 (10/2015 – 09/2016); Y4 = Fiscal Year 4 (10/2016 – 09/2017)



## **Appendix B:**

### **Student Survey Evaluation Report: Fall 2014**



## **METHODOLOGY**

The student survey, as part of the student evaluation, was distributed to students who took classes in the ITC<sup>2</sup> Project in the Fall of 2014. The student survey was distributed through emails sent by the ITC<sup>2</sup> Project team and through visits made to various Computer Information Technology (CIT) classrooms. Data collection began on August 18, 2014 and ended on October 31, 2014. A total of 157 students completed the survey.

Students were asked a series of demographic questions (e.g., gender, race/ethnicity), veteran and disability status; Trade Adjustment Assistance (TAA) and Workforce Investment Act (WIA) eligibility; and CIT focus area.

Students were asked about their education and career goals, why they decided to enroll at Iowa Western Community College (IWCC), how they heard about the program, and other institutions considered. Lastly, students were asked about their current status (e.g., number of semesters completed, number of semesters left to complete).

## RESULTS

*Demographics.* The majority (75.8%) of the CIT students surveyed were male (see Table 1). The majority (86.0%) of students were white, 9.6% were Black or African American, 5.7% were Hispanic/Latino, 2.5% were American Indian/Alaskan Native, and 1.3% were Asian (see Table 2). Approximately one-fifth (16.6%) of the students indicated that they were U.S. veterans (see Table 3) and 6.4% indicated that they were considered disabled (per the Americans with Disabilities Act of 1990; see Table 4).

Approximately half (51.6%) of the students indicated that they were eligible to receive Pell Grant assistance, 15.3% were not eligible, 22.0% were not sure whether they were eligible, and 10.8% did not apply for financial aid assistance (see Table 5). Less than one percent of students indicated that they were eligible to receive Trade Adjustment Assistance (TAA), 43.9% indicated that they were not TAA eligible, and 55.4% did not know whether they were eligible (see Table 6). Only 1.3% of the students indicated that they took part in the Workforce Investment Act (WIA) program, while the majority (66.2%) indicated that they were not eligible or not sure (32.5%; see Table 7).

The top six CIT focus areas identified by students were Application and Web Programming (Associate of Applied Science; 25.5%), Network and System Administration (Associate of Applied Science; 18.5%), Graphic Communications (Associate of Applied Science; 15.3%), Application Programming (Associate of Arts; 10.2%), Computer Networking (Associate of Arts; 6.4%), and Management Information Systems (Associate of Arts; 6.4%; see Table 8).

*Enrollment/Goals.* Approximately one-third (30.6%) of students indicated that they heard about IWCC from a friend, 24.8% heard about it from a family member, and 24.2% indicated they had previously taken classes at IWCC (see Table 9). More than half (58.6%) of students were employed on either a part-time (40.8%) or full-time (17.8%) basis and 41.4% indicated that they were not employed (see Tables 10 and 11).

The majority of students (58.0%) indicated that they enrolled at IWCC because it was close to home, 44.6% enrolled as a cost savings measure, while others enrolled because they had previously taken classes at IWCC (23.6%) or thought that it would be easy to transfer to another college (22.9%; see Table 12).

Less than half (41.4%) of the students surveyed indicated that they considered attending other institutions (see Table 13). The other institutions most likely to be considered were: University of Nebraska – Omaha (35.4%), Iowa State University (24.6%), Bellevue (20.0%), and Metropolitan Community College (18.5%; see Table 14).

Students were also asked how long it's been since they had last been in school. Slightly more than one-third (37.6%) of the students indicated that they enrolled at IWCC right after high school. Approximately one-fourth (25.5%) were out for 1-2 years, 7.0% were out for 3-4 years, and 29.9% of the students were out of school 5 or more years before enrolling at IWCC (see Table 15).

The majority of students (65.0%) indicated that they chose CIT as a degree program because they were interested in IT. Over half of the students indicated that they want to work in the IT field and want to strengthen their skills in IT (58.6% and 51.6% respectively; see Table 16). Approximately one-third (36.9%) of students indicated that their original education goal when enrolling at IWCC was to transfer to a 4-year college, while another third (36.3%) indicated that their original goal was to complete an AA/AS degree (see Table 17).

Over half (59.2%) of the students indicated that their original career goal when enrolling at IWCC was to “get a job in the IT field,” 22.9% indicated their goal was to “get a job,” 12.1% of the students indicated that their goal was to get promoted, increase salary/wages at current job or to get a better job in IT than their current IT job (see Table 18).

Students were asked about the number of semesters they had completed at IWCC.

Approximately one-fifth (20.4%) of the students had not yet completed any semesters, 24.8% had completed one semester, 10.2% had completed two semesters, 19.7% had completed three semesters, 15.3% had completed 4-5 semesters, 7.0% had completed between 6-8 semesters, and 2.4% indicated that they had completed 10 or more semesters (see Table 19).

Students were also asked how many more semesters they expected to complete at IWCC. A few students (1.9%) indicated that they were not expecting to complete any more semesters, 16.6% expected to complete at least one more semester, 17.2% expected to complete two more semesters, 33.8% expected to complete three more semesters, 21.0% expected to complete four more semesters, and 9.4% indicated that they expected to complete five or more semesters (see Table 20).

Lastly, students were asked whether they had been continuously enrolled at IWCC since they first started. The majority (58.0%) of students indicated that they had been continuously enrolled, while 16.6% said no, and 25.4% of the students indicated that it was their first semester enrolled at IWCC (see Table 21).

The following tables present the descriptive statistics for each of the questions asked in the fall student survey.

## DEMOGRAPHICS

This section centers on the demographics of the students taking CIT courses (e.g., gender, race/ethnicity, TAA eligibility, Veteran status, focus area in the CIT program).

**Table 1.**

***Gender:***

Gender	Percentage
Male	75.8
Female	24.2

*n*=157

**Table 2.**

***Race/Ethnicity: (Select all that apply)***

Race/Ethnicity	Percentage
Hispanic/Latino	5.7
Black or African American	9.6
American Indian/Alaskan Native	2.5
Native Hawaiian or Other Pacific Islander	0.0
Asian	1.3
White	86.0

*Note:* The percentages do not add up to 100%.  
*n*=157

**Table 3.**

***Are you an eligible U.S. veteran?***

Response	Percentage
Yes	16.6
No	83.4

*n*=157

**Table 4.*****Are you considered disabled per the ADA (Americans with Disabilities Act of 1990)?***

Response	Percentage
Yes	6.4
No	93.6

*n*=157**Table 5.*****If you completed the FAFSA, were you determined eligible to receive Pell Grant assistance?***

Response	Percentage
Yes	51.6
No	15.3
Not sure	22.3
I did not complete FAFSA	10.8

*n*=157**Table 6.*****Are you eligible to receive TAA (Trade Adjustment Assistance) Benefits?***

Response	Percentage
Yes	0.6
No	43.9
Not sure	55.4

*n*=157**Table 7.*****Are you a part of the Workforce Investment Act (WIA) program that provides tuition assistance?***

Response	Percentage
Yes	1.3
No	66.2
Not sure	32.5

*n*=157

**Table 8.**  
***CIT Focus Area:***

CIT Focus	Percentage
Application Programming (Assoc. of Arts)	10.2
Application and Web Programming (Assoc. of Applied Science)	25.5
Computer Networking (Assoc. of Arts)	6.4
Desktop Support Certificate (Certificate)	1.3
E-Commerce (Assoc. of Arts)	0.6
Graphic Communications (Assoc. of Applied Science)	15.3
Management Information Systems (Assoc. of Arts)	6.4
Network and System Administration (Assoc. of Applied Science)	18.5
Programming Certificate (Certificate)	5.7
System Administration Certificate (Certificate)	0.6
Web Programming (Assoc. of Arts)	5.1
Other	4.5

*n*=157

## ENROLLMENT/GOALS

This section centers on students' enrollment and career status and goals (e.g., current employment status, reasons for enrolling at IWCC, reasons for choosing CIT as a degree program, education goals, career goals, number of semesters completed, expected to be completed).

**Table 9.**  
*How did you hear about Iowa Western Community College? (Select all that apply)*

Avenues of Information	Percentage
Television	16.6
Radio	18.5
Social Media	11.5
School Counselor or Advisor	20.4
I have previously taken classes at IWCC	24.2
Employer/Work	1.3
I heard about it from a friend	30.6
I heard about it from a family member	24.8
Other	13.4

Note: The percentages do not add up to 100%.

*n=157*

Responses from the "Other" choice:

*Live in area/grew up in area (13)*

*Sports (3)*

*Amy (1)*

*Cross Country Coach (1)*

*Don't remember (1)*

*Former student (1)*

**Table 10.**  
*Are you currently employed? (Select one)*

Response	Percentage
Yes	58.6
No	41.4

*n=157*

**Table 11.***If you are employed, are you a:*

Employment	Percentage
Part-time employee	40.8
Full-time employee	17.8
Not employed	41.4

*n=157***Table 12.***Why did you enroll at Iowa Western Community College? (Select all that apply)*

Enrollment at IWCC	Percentage
Close to home	58.0
Cost savings	44.6
Cutting edge technology	19.7
Challenging classes	4.5
I've taken classes at IWCC in the past	23.6
I am a designated TAA worker	0.0
Easy transfer to another college	22.9
IWCC has a close relationship with business and industry	11.5
Other	14.0

*Note: The percentages do not add up to 100%.**n=157**Responses from the "Other" choice:**Sports (i.e., wrestling, baseball) (8)**Professors (3)**Have children (2)**Study computers (2)**Boyfriend at the time went to IWCC (1)**Close to home (1)**Grandparents verifying determination (1)**Improve quality of life (1)**Parents teach at IWCC (1)**Want degree (1)*



**Table 13.*****Before you enrolled at IWCC, did you consider attending other institutions?***

Response	Percentage
Yes	41.4
No	58.6

*n*=157**Table 14.*****What other institutions did you consider?***

Responses	Percentage
University of Nebraska – Omaha	35.4
Iowa State University	24.6
Bellevue	20.0
Metropolitan Community College	18.5
Creative Center	6.2
ITT Tech	6.2
University of Iowa	6.2
University of Nebraska – Lincoln	6.2
Des Moines Area Community College	4.6
DeVry	4.6
University of Nebraska – Kearney	4.6
University of Northern Iowa	4.6
Midland University	3.1
Morningside	3.1
Southwestern Community College (Iowa)	3.1
University of Colorado at Boulder	3.1
Vatterott	3.1
AIA	1.5
Buena Vista	1.5
CalArts	1.5

Responses	Percentage
CTU	1.5
Grandview University	1.5
Illinois Institute of Technology	1.5
Illinois State University	1.5
Iowa Central Community College	1.5
Kaplan University	1.5
KCAI	1.5
Kirkwood Community College	1.5
Lincoln College (Illinois)	1.5
Norfolk State University	1.5
Northern Illinois University	1.5
Northwest Missouri State University	1.5
Old Dominion University	1.5
Purdue	1.5
Salt Lake City Community College	1.5
Scott Community College	1.5
Southern Illinois University at Edwardsville	1.5
University of Advancing Technology	1.5

*Note:* Some respondents provided multiple responses.  
*n*=65

**Table 15.*****Prior to enrolling at IWCC, how long has it been since you were last in school? (Select one)***

Last in School	Percentage
Enrolled right out of high school	37.6
Less than 1 year	11.5
1 years	7.0
2 years	7.0
3 years	5.1
4 years	1.9
5 or more years	29.9

*n*=157**Table 16.*****Why did you choose CIT as a degree program? (Please check all that apply)***

Reasons for choosing CIT	Percentage
I am interested in IT	65.0
I want to work in the IT field	58.6
I want to strengthen my skills in IT	51.6
I need it in order to get an increase in wages or get promoted at my current job	7.6
The degree will allow me to get a better job with a different employer	28.7
Other	6.4
I have not chosen CIT as a degree program	6.4

*Note:* The percentages do not add up to 100%.*n*=157*Responses from the "Other" choice:**Interested in IT/keep up with the times (5)**Graphic Arts/Communications (2)**Be self-supporting (1)**Get certifications (1)**Learn something different (1)*

**Table 17.**

***What was your original education goal when you enrolled at IWCC? (Please select the one that best describes your goal)***

Education Goal	Percentage
Take some classes	7.0
Complete Certificate Program	7.0
Complete Diploma	11.5
Complete AA/AS degree	36.3
Transfer to a 4 year college	36.9
Other	1.3

*n*=157

Responses from the "Other" choice:

Not sure (2)

**Table 18.**

***What was your original career goal when you enrolled at IWCC? (Please select the one that best describes your goal)***

Career Goal	Percentage
Get a job	22.9
Get a job in IT field	59.2
Keep my job	2.5
Get a promotion and/or increase my salary/ wages at my current job	7.0
Get a better job in IT than my current IT job	5.1
Other	3.2

*n*=157

Responses from the "Other" choice:

Enhance skills (1)

Get a job in graphics (1)

Start independent video game company (1)

Work for Blizzard Entertainment as a video game programmer (1)

**Table 19.***Including this current semester, how many semesters have you completed at IWCC?*

Number of semesters	Percentage
0 semesters	20.4
1 semester	24.8
2 semesters	10.2
3 semesters	19.7
4 semesters	6.4
5 semesters	8.9
6 semesters	4.5
7 semesters	1.9
8 semesters	0.6
10 or more semesters	2.4

*n*=157

**Table 20.***Not including this current semester, how many more semesters do you expect to complete?*

Number of semesters	Percentage
0 semesters	1.9
1 semester	16.6
2 semesters	17.2
3 semesters	33.8
4 semesters	21.0
5 semesters	3.2
6 semesters	1.9
7 semesters	1.3
8 semesters	0.6
10 or more semesters	2.4

*n*=157

**Table 21.**  
*Have you attended IWCC continuously since you first started?*

Response	Percentage
Yes	58.0
No	16.6
This is my first semester	25.4

*n*=157



## **Appendix C:**

### **Student Survey Evaluation Report: Fall 2015**

## METHODOLOGY

The student survey, which comprises a portion of the overall student evaluation, was distributed to students who took classes in the ITC<sup>2</sup> Project in the Fall of 2015. Online surveys were distributed at the beginning of the Fall 2015 semester (between August 17, 2015 and September 14, 2015) via email sent by the ITC<sup>2</sup> Project team. In addition to the email invitations, ITC<sup>2</sup> Project team members also stopped by various Computer Information Technology (CIT) classrooms to encourage students to complete the student surveys. A total of 148 students completed the fall 2015 student survey

Students that indicated that this was their first semester in the CIT program were asked a series of demographic questions (e.g., gender, race/ethnicity), veteran and disability status; Trade Adjustment Assistance (TAA) and Workforce Investment Act (WIA) eligibility; and their focus area within the CIT program.

The new students were also asked about their education and career goals, why they decided to enroll at Iowa Western Community College (IWCC), how they heard about the program, and other institutions considered. Lastly, students were asked about their current status (e.g., number of semesters completed, number of semesters left to complete).

Returning students were asked about their current education and career goals and whether those goals have changed since they first enrolled at IWCC. Students were asked about activities they participated in over the summer and about the types of activities they would like to participate in moving forward. Lastly, students were asked whether they had referred anyone to the CIT program.



## RESULTS

### *New IWCC CIT Students*

Demographics. Approximately two-thirds (66.2%) of students that responded to the student survey indicated that this was their first semester in the CIT program (see Table 1). Of these students, the majority were male (75.5%; see Table 2), 80.0% were White, 10.2% were Black or African American, 9.2% were Hispanic/Latino, 3.1% were American Indian/Alaskan Native, and 2.0% were Asian (see Table 3). Approximately one-tenth (11.2%) of the students reported that they were eligible U.S. veterans (see Table 4) and 8.2% reported that they were considered disabled (in accordance with the Americans with Disabilities Act of 1990; see Table 5).

Approximately half (54.1%) of the students indicated that they were eligible to receive Pell Grant assistance, 6.1% were not eligible, 23.5% were not sure whether they were eligible, and 16.3% did not apply for the financial aid assistance (see Table 6). Only one percent of the students indicated they were eligible to receive Trade Adjustment Assistance (TAA), 40.8% indicated they were not TAA eligible, and 58.2% did not know whether they were eligible (see Table 7). None of the students reported that they participated in the Workforce Investment Act (WIA), however, approximately one-third (38.8%) of the students indicated that they were not sure if they were a part of WIA (see Table 8).

Students were asked to identify their focus area in the CIT program. The top six CIT focus areas identified by students were: Network and System Administration (Associate of Applied Science; 19.6%), Application and Web Programming (Associate of Applied Science; 17.5%), Graphic Communications (Associate of Applied Science; 16.5%), Application Programming (Associate of Arts; 10.3%), Computer Networking (Associate of Arts; 9.3%), and Management Information Systems (Associate of Arts; 7.2%; see Table 9).

Enrollment and Career Status/Goals. When asked how they heard about IWCC, approximately one-third (30.9%) of students indicated that they heard about IWCC from a school counselor or advisor, 30.9% heard about it from a family member, 28.9% from a friend and 23.7% indicated they had previously taken classes at IWCC (see Table 10).

Slightly less than half (48.5%) of the students indicated they were employed (66.0% part-time, 34.0% full-time), while 51.5% indicated that they were not employed (see Tables 11 and 12).

When asked why they enrolled at IWCC, the majority of students (60.0%) indicated that they enrolled at IWCC because it was close to home, 53.6% enrolled as a cost savings measure, while others enrolled because IWCC has cutting edge technology (18.6%) or for other reasons not specified (17.5%; see Table 13). More than half (54.6%) of the students indicated that they considered attending other institutions (see Table 14). The other institutions most likely to be considered were: University of Nebraska – Omaha (22.6%), Iowa State University (13.2%), Metro Community College (11.3%), and Bellevue University (7.5%; see Table 15).

Students were asked how long it had been since they had last been in school prior to enrolling at IWCC. Slightly more than one-third (36.1%) of the students indicated that they enrolled at IWCC right after high school. Approximately one-fourth (28.8%) were out for 1-2 years, 12.4%

were out for 3-4 years, and 22.7% of the students were out of school for five or more years before enrolling at IWCC (see Table 16).

When asked why they chose CIT as a degree program, the majority of students (63.9%) indicated that they chose CIT because they are interested in Information Technology (IT). Approximately half of the students indicated that they wanted to work in the IT field and wanted to strengthen their skills in IT (57.7% and 44.3% respectively; see Table 17). Approximately one-third (38.1%) of students indicated that their original education goal when enrolling at IWCC was to complete an AA/AS degree, while another third (34.0%) indicated that their original goal was to transfer to a 4-year college (see Table 18).

Over half (55.7%) of the students indicated that their original career goal when enrolling at IWCC was to “get a job in the IT field,” 28.9% indicated their goal was to “get a job,” and 6.2% of the students indicated that their goal was to get promoted, increase salary/wages at their current job or to get a better job in IT than their current IT job (see Table 19).

Students were asked about the number of semesters they had completed at IWCC. Over half (56.7%) of the students had not yet completed any semesters, 26.8% had completed one semester, 5.2% had completed two semesters, 5.2% had completed three semesters, 3.1% had completed 4-5 semesters, 3.1% had completed 6-9 semesters, and no student indicated that they had completed 10 or more semesters (see Table 20).

Students were also asked how many more semesters they expected to complete at IWCC. A few students (4.1%) indicated that they were not expecting to complete any more semesters, 7.2% expected to complete at least one more semester, 7.2% expected to complete two more semesters, 21.6% expected to complete three more semesters, 39.2% expected to complete four more semesters, and 19.6% indicated that they expected to complete five or more semesters (see Table 21).

Students were asked whether they had been continuously enrolled at IWCC since they first started. The majority (56.7%) of the students indicated that it was their first semester enrolled at IWCC, while 14.4% said no, and 28.9% said yes (see Table 22). Almost half (43.3%) of the students indicated they were planning to graduate in May of 2017 (see Table 23).

### ***Returning CIT Students***

Returning students were asked about their current education goal. The majority (56.0%) indicated their education goal was to complete an AA/AS degree, 22.0% indicated that they will transfer to a 4-year college, and 12.0% indicated they intended to complete a diploma (see Table 24). Most (80.0%) of the students indicated that their education goal had not changed (see Table 25). For the students indicating their education goal had changed, 25.0% indicated it was because of their interest in the computer field, 12.5% indicated it was because they started to care, and 12.5% indicated they changed their concentration (see Table 26).

Two-thirds of the returning students (66.0%) indicated their current career goal was to get a job in the IT field. One-fifth (20.0%) indicated their current career goal was to get a job, and 6.0% indicated their current goal was to get a better job with a different employer within the same field

as their current job (see Table 27). Most (80.0%) of the students indicated that their career goal has not changed (see Table 28). For the students indicating their career goal had changed, they offered a variety of reasons (see Table 29).

The returning students indicated they participated in internships (45.5%) and revamped their computers (18.2%) over the summer (see Table 30). The majority (79.6%) then also responded that they had not had an internship over the summer (see Table 31).

The returning students were asked about any activities or interactions they would like to take part in now that they had been in the CIT program at least one semester. Approximately one-third (36.0%) indicated they would like to get an internship, 16.0% indicated they would like to see more data center tours or tours in general, 8.0% indicated they would like to see more Start Up Grind events, 8.0% indicated they would like to participate more in the Nerd Squad, and 8.0% indicated they would like to participate in more CIT events in general (see Table 32).

Finally, the returning students were asked about the number of people they have referred to the CIT program. Approximately two-thirds (65.3%) indicated that they had not referred anyone to the program, 26.5% indicated they had referred 1-3 people, 4.1% indicated they had referred 4-6 people, and 4.1% indicated they had referred more than 6 people (see Table 33).

The following tables present the descriptive statistics for each of the questions asked in the fall student survey.

## DEMOGRAPHICS

This section centers on the demographics of the students taking CIT courses (e.g., gender, race/ethnicity, TAA eligibility, Veteran status, focus area in the CIT program).

**Table 1.**  
*Is this your first semester in the CIT program?*

Response	Percentage
Yes	66.2
No	33.8

*n*=148

**Table 2.**  
*Gender:*

Gender	Percentage
Male	75.5
Female	24.5

*n*=98

**Table 3.**  
*Race/Ethnicity: (Select all that apply)*

Race/Ethnicity	Percentage
Hispanic/Latino	9.2
Black or African American	10.2
American Indian/Alaskan Native	3.1
Native Hawaiian or Other Pacific Islander	0.0
Asian	2.0
White	80.0

*Note:* The percentages do not add up to 100%.

*n*=98

**Table 4.**  
*Are you an eligible U.S. veteran?*

Response	Percentage
Yes	11.2
No	88.8

*n*=98

**Table 5.**  
*Are you considered disabled per the ADA (Americans with Disabilities Act of 1990)?*

Response	Percentage
Yes	8.2
No	91.8

*n*=98

**Table 6.**  
*If you completed the FAFSA, were you determined eligible to receive Pell Grant assistance?*

Response	Percentage
Yes	54.1
No	6.1
Not sure	23.5
I did not complete FAFSA	16.3

*n*=98

**Table 7.**  
*Are you eligible to receive TAA (Trade Adjustment Assistance) Benefits?*

Response	Percentage
Yes	1.0
No	40.8
Not sure	58.2

*n*=98

**Table 8.*****Are you a part of the Workforce Investment Act (WIA) program that provides tuition assistance?***

Response	Percentage
Yes	0.0
No	61.2
Not sure	38.8

*n*=98**Table 9.*****CIT focus area:***

CIT Focus	Percentage
Application Programming (Assoc. of Arts)	10.3
Application and Web Programming (Assoc. of Applied Science)	17.5
Computer Networking (Assoc. of Arts)	9.3
Desktop Support Certificate (Certificate)	3.1
E-Commerce (Assoc. of Arts)	0.0
Graphic Communications (Assoc. of Applied Science)	16.5
Management Information Systems (Assoc. of Arts)	7.2
Network and System Administration (Assoc. of Applied Science)	19.6
Programming Certificate (Certificate)	4.1
System Administration Certificate (Certificate)	0.0
Web Programming (Assoc. of Arts)	3.1
Other	9.3

*n*=97

## ENROLLMENT and CAREER STATUS/GOALS

This section centers on students' enrollment and career status and goals (e.g., current employment status, reasons for enrolling at IWCC, reasons for choosing CIT as a degree program, education goals, career goals, number of semesters completed, expected to be completed).

**Table 10.**  
*How did you hear about Iowa Western Community College? (Select all that apply)*

Avenues of Information	Percentage
Television	12.4
Radio	17.5
Social Media	12.4
School Counselor or Advisor	30.9
I have previously taken classes at IWCC	23.7
Employer/Work	5.2
I heard about it from a friend	28.9
I heard about it from a family member	30.9
Other	8.2

Note: The percentages do not add up to 100%.

*n=97*

Responses from the "Other" choice:

*Close by (2)*  
*Basketball (1)*  
*GED classes (1)*  
*Honors Early Start courses (1)*  
*Mr. Gahn (1)*  
*Personal Research (1)*  
*Soccer Coach (1)*

**Table 11.**  
*Are you currently employed? (Select one)*

Response	Percentage
Yes	48.5
No	51.5

*n=97*

**Table 12.***If you are employed, are you a:*

Employment	Percentage
Part-time employee	66.0
Full-time employee	34.0

*n=47***Table 13.***Why did you enroll at Iowa Western Community College? (Select all that apply)*

Enrollment at IWCC	Percentage
Close to home	60.0
Cost savings	53.6
Cutting edge technology	18.6
Challenging classes	8.2
I've taken classes at IWCC in the past	16.5
I am a designated TAA worker	0.0
Easy transfer to another college	16.5
IWCC has a close relationship with business and industry	15.5
Other	17.5

*Note: The percentages do not add up to 100%.**n=97**Responses from the "Other" choice:**Sports (3)**Best choice for my career (2)**Parent(s) attended (2)**Promise Pottawatomie Scholarship/Scholarship (2)**Better computer program than others (1)**Change school (1)**Help further my artistic craft (1)**Needed a class here (1)**People are more helpful/supportive (1)*



**Table 14.**  
*Before you enrolled at IWCC, did you consider attending other institutions?*

Response	Percentage
Yes	54.6
No	45.4

*n*=97

**Table 15.**  
*What other institutions did you consider?*

Response	Percentage
University of Nebraska – Omaha	22.6
Iowa State University	13.2
Metro Community College	11.3
Bellevue University	7.5
Northwest Missouri State	3.7
University of Northern Iowa	3.7
University of Nebraska – Lincoln	3.7
WITT	3.7
Art Center	1.9
Art Institute of Milwaukee	1.9
Briar Cliff University	1.9
Carnegie Mellon	1.9
Central College	1.9
Central Texas College	1.9
College of Saint Mary	1.9
Creative Center	1.9
Des Moines Area Community College	1.9
GAA	1.9
Iowa Central Community College	1.9
Iowa Lakes Community College	1.9

Response	Percentage
ITT Tech	1.9
Kapiolani Community College	1.9
Kaplin	1.9
Kirkwood Community College	1.9
Nebraska University	1.9
Northeast Community College	1.9
Northern Illinois University	1.9
Northwest Iowa Community College	1.9
RMCAD	1.9
Southwestern Community College	1.9
University of Iowa	1.9
University of Nebraska	1.9
University of Omaha	1.9
University of Phoenix	1.9
University of Washington	1.9

*Note:* Some respondents provided multiple responses.  
*n*=53

**Table 16.**  
*Prior to enrolling at IWCC, how long has it been since you were last in school? (Select one)*

Last in School	Percentage
Enrolled right out of high school	36.1
Less than 1 year	17.5
1 years	10.3
2 years	1.0
3 years	7.2
4 years	5.2
5 or more years	22.7

*n*=97

**Table 17.*****Why did you choose CIT as a degree program? (Please check all that apply)***

Reasons for choosing CIT	Percentage
I am interested in IT	63.9
I want to work in the IT field	57.7
I want to strengthen my skills in IT	44.3
I need it in order to get an increase in wages or get promoted at my current job	5.2
The degree will allow me to get a better job with a different employer	32.1
Other	3.1
I have not chosen CIT as a degree program	3.1

Note: The percentages do not add up to 100%.

*n=97*

Responses from the "Other" Choice:

*Elementary Education Degree (1)*

*Hone my skills (1)*

*Voc rehab (1)*

**Table 18.*****What was your original education goal when you enrolled at IWCC? (Please select the one that best describes your goal)***

Education Goal	Percentage
Take some classes	2.1
Complete Certificate Program	12.4
Complete Diploma	13.4
Complete AA/AS degree	38.1
Transfer to a 4 year college	34.0
Other	0.0

*n=97*

Responses from the "Other" choice:

*None*

**Table 19.**

***What was your original career goal when you enrolled at IWCC? (Please select the one that best describes your goal)***

Career Goal	Percentage
Get a job	28.9
Get a job in IT field	55.7
Keep my job	0.0
Get a promotion and/or increase my salary/ wages at my current job	2.1
Get a better job in IT than my current IT job	4.1
Other	9.3

*n=97*

*Responses from the "Other" choice:*

- Become a game designer (1)*
- Become an entrepreneur (1)*
- Eventually work for a major company like Google (1)*
- FBI agent for cyber crimes (1)*
- Get a better IT job than what I have succeeded at so far (1)*
- Go to medical school (1)*
- Move onto a four year school (1)*
- To get better at computer arts (1)*
- Wrestle (1)*

**Table 20.***Including this current semester, how many semesters have you completed at IWCC?*

Number of semesters	Percentage
0 semesters	56.7
1 semester	26.8
2 semesters	5.2
3 semesters	5.2
4 semesters	3.1
5 semesters	0.0
6 semesters	1.0
7 semesters	0.0
8 semesters	0.0
9 semesters	2.1
10 or more semesters	0.0

*n=97***Table 21.***Not including this current semester, how many more semesters do you expect to complete at IWCC?*

Number of semesters	Percentage
0 semesters	4.1
1 semester	7.2
2 semesters	7.2
3 semesters	21.6
4 semesters	39.2
5 semesters	4.1
6 semesters	4.1
7 semesters	2.1
8 semesters	3.1
9 semesters	1.0
10 or more semesters	5.2

*n=96*

**Table 22.**  
*Have you attended IWCC continuously since you first started?*

Response	Percentage
Yes	28.9
No	14.4
This is my first semester	56.7

*n*=97

**Table 23.**  
*What is your anticipated graduation/program completion date?*

Response	Percentage
07/2015	2.1
12/2015	4.1
05/2016	6.2
08/2016	2.1
2016	1.0
01/2017	2.1
05/2017	43.3
07/2017	2.1
08/2017	7.2
09/2017	1.0
10/2017	1.0
12/2017	3.1
2017	4.1
05/2018	8.2
08/2018	1.0
12/2018	1.0
2018	2.1
01/2019	1.0
05/2019	2.1
Not sure	5.2

*n*=97

## RETURNING STUDENTS

This section centers on the questions for returning students including changes in their education and career goals and activities they participated in over the summer.

**Table 24.**  
*What is your current education goal?*

Education Goal	Percentage
Take some classes	0.0
Complete Certificate Program	10.0
Complete Diploma	12.0
Complete AA/AS Degree	56.0
Transfer to a 4 year college	22.0
Other	0.0

*n=50*

*Responses from the "Other" choice:*

*None*

**Table 25.**  
*Has your education goal changed since enrolling at Iowa Western?*

Response	Percentage
Yes	20.0
No	80.0

*n=50*

**Table 26.**  
*Why did your education goal change?*

Response	Percentage
Interest in computer field	25.0
Because I started to care	12.5
Changed because I felt like I was useless in field	12.5
Changed my concentration	12.5
Get a career in two years instead of four	12.5
Good at chemistry (double-major)	12.5
I would like to make more money	12.5

*n*=8

**Table 27.**  
*What is your current career goal?*

Career Goal	Percentage
Get a job	20.0
Get a job in information technology field	66.0
Keep my current job	2.0
Get a promotion and/or increase my salary/wages at my current job	2.0
Get a better job with a different employer within the same field as my current job	6.0
Other	4.0

*n*=50

Responses from the "Other" choice:

*Keep updated in industry (1)*  
*Start my own business (1)*



**Table 28.**  
*Has your career goal changed since enrolling at Iowa Western?*

Response	Percentage
Yes	20.0
No	80.0

*n*=50

**Table 29.**  
*Why did your career goal change?*

Response	Percentage
Changed majors	11.1
Discovered different careers	11.1
Double majoring	11.1
Family environment	11.1
From business to computer science	11.1
Learn more about PCs	11.1
More opportunities beyond Google	11.1
Started jobless, now have a full time job	11.1
Want to be self-supporting	11.1

*n*=9

**Table 30.**  
*What CIT activities did you participate in over the summer?*

Response	Percentage
Internship(s)	45.5
Revamped computer	18.2
Startup Grind, Info Social	9.1
Summer classes	9.1
Tour	9.1
Volunteer Fire Department	9.1

*n*=11

**Table 31.**  
*Did you have an internship over this past summer?*

Response	Percentage
Yes	20.4
No	79.6

*n*=49

**Table 32.**  
*Now that you have completed at least one semester in the CIT program, what activities or interactions would you like to see/participate in moving forward?*

Response	Percentage
Get an internship	36.0
More data center tours/tours in general	16.0
More Start Up Grind activities	8.0
Nerd Squad	8.0
Participate in more CIT events	8.0
Activities with more flexible hours	4.0
Career/Internship Fair	4.0
Digital Arts activities	4.0
Get a scholarship	4.0
Mentoring activity	4.0
More hands-on in class	4.0
More practical job knowledge	4.0
More programming events	4.0
Not interested in participating	4.0
PORT	4.0
Tutoring program for CIT classes	4.0

*n*=25

**Table 33.**

*If you have referred other people to the CIT program, how many have you referred?*

Number of people	Percentage
1-3 people	26.5
4-6 people	4.1
More than 6 people	4.1
I have not referred anyone	65.3

*n*=49



## **Appendix D:**

### **Student Survey Evaluation Report: Fall 2016**

## METHODOLOGY

The student survey, which comprises a portion of the overall student evaluation, was distributed to students who took classes in the ITC<sup>2</sup> Project in the Fall of 2016. Online surveys were distributed at the beginning of the Fall 2016 semester via email sent by the ITC<sup>2</sup> Project team at the beginning of the Fall 2016 semester between August 31, 2016 and October 17, 2016. In addition to the email invitations, ITC<sup>2</sup> Project team members also stopped by various Computer Information Technology (CIT) classrooms to encourage students to complete the student surveys. A total of 148 students completed the Fall 2016 student survey

Students that indicated that it was their first semester in the CIT program were asked a series of demographic questions (e.g., gender, race/ethnicity), veteran and disability status; Trade Adjustment Assistance (TAA) and Workforce Investment Act (WIA) eligibility; and their focus area within the CIT program.

The new students were also asked about their education and career goals, why they decided to enroll at Iowa Western Community College (IWCC), how they heard about the program, and other institutions considered. Lastly, students were asked about their current status (e.g., number of semesters completed, number of semesters left to complete).

Returning students were asked about their current education and career goals and whether those goals have changed since they first enrolled at IWCCF. Students were asked about activities they participated in over the summer and about the types of activities they would like to participate in moving forward. Lastly, students were asked whether they had referred anyone to the CIT program.

## RESULTS

### *New IWCC CIT Students*

Demographics. Approximately two-thirds (60.8%) of students that responded to the student survey indicated that it was their first semester in the CIT program (see Table 1). Of these students, the majority were male (88.8%; see Table 2); 83.0% of the students were White, 12.5% were Hispanic/Latino, 9.1% were Black or African American, and 2.3% were American Indian/Alaskan Native (see Table 3). Approximately one-twentieth (5.7%) of the students reported that they were eligible U.S. veterans (see Table 4), 15.9% reported that an immediate family member was an eligible U.S. veteran (see Table 5), and 3.4% reported that they were considered disabled (in accordance with the Americans with Disabilities Act of 1990; see Table 6).

Approximately half (42.0%) of the students indicated that they were eligible to receive Pell Grant assistance, 19.3% were not eligible, 26.1% were not sure whether they were eligible, and 12.5% did not apply for the financial aid assistance (see Table 7). Only 3.4% of the students indicated they were eligible to receive Trade Adjustment Assistance (TAA), 54.5% indicated they were not TAA eligible, and 42.0% did not know whether they were eligible (see Table 8). Only 1.1% of the students reported that they participated in the Workforce Investment Act (WIA) and approximately one-fourth (28.4%) of the students indicated that they were not sure if they were a part of WIA (see Table 9).

Students were asked to identify their focus area in the CIT program. The top four CIT focus areas identified by students were: Computer Science – Programming Concentration (31.0%), Computers: Network and System Administration (17.2%), Computers: Application and Web Programming (16.1%), and Computers: Cyber Security (10.3%; see Table 10).

Enrollment and Career Status/Goals. When asked how they heard about IWCC, approximately one-third (35.2%) of students indicated that they heard about IWCC from a family member, 34.1% from a school counselor or advisor, and 33.0% from a friend (see Table 11).

Slightly more than half (54.5%) of the students indicated they were employed (68.1% part-time, 31.9% full-time), while 45.5% indicated that they were not employed (see Tables 12 and 13).

When asked why they enrolled at IWCC, the majority of students (64.4%) indicated that they enrolled at IWCC because it was close to home, 47.1% enrolled as a cost savings measure, while others enrolled because it easily transfers to another college (28.7%) and cutting edge technology (23.0%; see Table 14). More than half (65.5%) of the students surveyed indicated that they considered attending other institutions. The other institutions most likely to be considered were: University of Nebraska – Omaha (26.3%), University of Nebraska – Lincoln (14.0%), Iowa State University (12.3%), and Metro Community College (10.5%; see Table 16).

Students were asked how long it had been since they had last been in school prior to enrolling at IWCC. Half (50.0%) of the students indicated that they enrolled at IWCC right after high school. Approximately one-fourth (25.6%) were out for 1-2 years, 4.7% were out for 3-4 years, and

19.8% of the students were out of school for five or more years before enrolling at IWCC (see Table 17).

When asked why they chose CIT as a degree program, the majority of students (77.9%) indicated that they chose CIT because they were interested in Information Technology (IT).

Approximately three-fourths (70.9%) of the students indicated that they want to work in the IT field and 48.8% of students indicated that they want to strengthen their skills in IT (see Table 18). Approximately half (45.3%) of students indicated that their original education goal when enrolling at IWCC was to transfer to a 4-year college and 29.1% indicated their original goal was to complete an AA/AS degree (see Table 19).

Over three-fourths (81.4%) of the students indicated that their original career goal when enrolling at IWCC was to “get a job in the IT field” and 16.3% indicated their goal was to “get a job” (see Table 20).

Students were asked about the number of semesters they had completed at IWCC. Almost half (47.7%) of the students had not yet completed any semesters, 34.9% had completed one semester, 8.1% had completed two semesters, 4.7% had completed three semesters, and 4.7% had completed 4-6 semesters (see Table 21).

Students were also asked how many more semesters they expected to complete at IWCC. One student (1.2%) indicated that they were not expecting to complete any more semesters, 4.7% expected to complete one more semester, 10.6% expected to complete two more semesters, 27.1% expected to complete three more semesters, 40.0% expected to complete four more semesters, and 16.5% indicated that they expected to complete five or more semesters (see Table 22).

Students were asked whether they had been continuously enrolled at IWCC since they first started. The majority (57.0%) of the students indicated that it was their first semester enrolled at IWCC, while 11.6% said no, and 31.4% said yes (see Table 23). Approximately one-third (36.7%) of the students indicated they are planning to graduate in May of 2018 (see Table 24).

### ***Returning CIT Students***

Returning students were asked about their current education goal. The majority (62.1%) indicated that their education goal is to complete an AA/AS degree, 19.0% indicated that they will transfer to a 4-year college, and 5.2% indicated they intend to complete a diploma (see Table 25). Most (72.4%) of the students indicated that their education goal has not changed (see Table 26). For the students indicating their education goal had changed, 31.3% indicated it was because they had changed majors, 31.3% indicated it was because they decided to continue their education, and 6.3% indicated it was because they decided to decrease the amount of education they wanted (see Table 27).

Two-thirds of the returning students (65.5%) indicated their current career goal is to get a job in the IT field. Less than one-fifth (13.8%) indicated their current career goal is to get a job and 6.9% indicated their current goal is to get a promotion and/or increase in salary/wages at current job (see Table 28). Most (77.6%) of the students indicated that their career goal has not changed

(see Table 29). For the students indicating their career goal had changed, they offered a variety of reasons (see Table 30).

The returning students indicated they participated in internships (66.7%) and completed courses (16.7%) over the summer (see Table 31). The majority (79.3%) then also responded that they had not held an internship over the summer (see Table 32).

The returning students were asked about any activities or interactions they would like to take part in now that they have been in the CIT program at least one semester. Approximately one-fourth (23.1%) indicated they would like to see the Cyber Defense Competition held more often, 15.4% indicated they want to be more involved, 11.5% indicated they want more hands-on activities, and 7.7% indicated they want more programming activities (see Table 33).

Finally, the returning students were asked about the number of people they had referred to the CIT program. Approximately half (51.7%) indicated that they had not referred anyone to the program, 43.1% indicated they had referred 1-3 people, 3.4% indicated they had referred 4-6 people, and 1.7% indicated they had referred more than 6 people (see Table 34).

The following tables present the descriptive statistics for each of the questions in the fall student survey.



## DEMOGRAPHICS

This section centers on the demographics of the students taking CIT courses (e.g., gender, race/ethnicity, TAA eligibility, Veteran status, focus area in the CIT program).

**Table 1.**  
*Is this your first semester in the CIT program?*

Response	Percentage
Yes	60.8
No	39.2

*n*=89

**Table 2.**  
*Gender:*

Gender	Percentage
Male	88.8
Female	11.2

*n*=89

**Table 3.**  
*Race/Ethnicity: (Select all that apply)*

Race/Ethnicity	Percentage
Hispanic/Latino	12.5
Black or African American	9.1
American Indian/Alaskan Native	2.3
Native Hawaiian or Other Pacific Islander	0.0
Asian	0.0
White	83.0

*Note:* The percentages do not add up to 100%.  
*n*=88

**Table 4.**  
*Are you an eligible U.S. veteran?*

Response	Percentage
Yes	5.7
No	94.3

*n*=88

**Table 5.**  
*Is an immediate family member (spouse or dependent) an eligible U.S. veteran?*

Response	Percentage
Yes	15.9
No	84.1

*n*=88

**Table 6.**  
*Are you considered disabled per the ADA (Americans with Disabilities Act of 1990)?*

Response	Percentage
Yes	3.4
No	96.6

*n*=88

**Table 7.**  
*If you completed the FAFSA, were you determined eligible to receive Pell Grant assistance?*

Response	Percentage
Yes	42.0
No	19.3
Not sure	26.1
I did not complete FAFSA	12.5

*n*=88

**Table 8.*****Are you eligible to receive TAA (Trade Adjustment Assistance) Benefits?***

Response	Percentage
Yes	3.4
No	54.5
Not sure	42.0

*n*=88**Table 9.*****Are you a part of the Workforce Investment Act (WIA) program that provides tuition assistance?***

Response	Percentage
Yes	1.1
No	70.5
Not sure	28.4

*n*=98

**Table 10.**  
*CIT focus area:*

CIT Focus	Percentage
Computer Science (Programming Concentration)	31.0
Computer Science (Systems Concentration)	2.3
Computer Science (Web Development Concentration)	5.7
Computers: Application & Web Programming	16.1
Computers: Cyber Security	10.3
Computers: Desktop Support Certificate	3.4
Computers: Management Information Systems	6.9
Computers: Network and System Administration	17.2
Computers: Programming Certificate	3.4
Graphic Communications	1.1
Other	2.3

*n*=87

## ENROLLMENT and CAREER STATUS/GOALS

This section centers on students’ enrollment and career status and goals (e.g., current employment status, reasons for enrolling at IWCC, reasons for choosing CIT as a degree program, education goals, career goals, number of semesters completed, expected to be completed).

**Table 11.**  
*How did you hear about Iowa Western Community College? (Select all that apply)*

Avenues of Information	Percentage
Television	13.6
Radio	15.9
Social Media	17.0
School Counselor or Advisor	34.1
I have previously taken classes at IWCC	17.0
Employer/Work	5.7
I heard about it from a friend	33.0
I heard about it from a family member	35.2
Other	17.0

Note: The percentages do not add up to 100%.

*n*=88

Responses from the “Other” choice:

Close by (5)

Coach (3)

Internet (1)

Met one of the teachers (1)

NCSA (1)

Newspaper (1)

Scholarship (1)

**Table 12.**  
*Are you currently employed? (Select one)*

Response	Percentage
Yes	54.5
No	45.5

*n*=88

**Table 13.***If you are employed, are you a:*

Employment	Percentage
Part-time employee	68.1
Full-time employee	31.9

*n=47***Table 14.***Why did you enroll at Iowa Western Community College? (Select all that apply)*

Enrollment at IWCC	Percentage
Close to home	64.4
Cost savings	47.1
Cutting edge technology	23.0
Challenging classes	6.9
I've taken classes at IWCC in the past	19.5
I am a designated TAA worker	2.3
Easy transfer to another college	28.7
IWCC has a close relationship with business and industry	10.3
Other	18.4

*Note: The percentages do not add up to 100%.**n=87**Responses from the "Other" choice:**Sports (5)**Great program/college (3)**Successful career (3)**Demands of career path (1)**Offered classes in high school (1)**Scholarship (1)**Wife is an employee (1)***Table 15.***Before you enrolled at IWCC, did you consider attending other institutions?*

Response	Percentage
Yes	65.5
No	34.5

*n=87*

**Table 16.**  
*What other institutions did you consider?*

Response	Percentage
University of Nebraska – Omaha	26.3
University of Nebraska – Lincoln	14.0
Iowa State University	12.3
Metro Community College	10.5
Southwestern Community College	7.0
Creighton University	3.5
Des Moines Area Community College	3.5
DeVry	3.5
University of Iowa	3.5
University of Northern Iowa	3.5
Adams State University	1.8
Albany State College	1.8
Bemidji State University	1.8
Brevard Community College	1.8
College of Southern Idaho	1.8
Drake	1.8
Full Sail	1.8
Georgia Southern	1.8
Iowa Lakes Community College	1.8
Kirkwood Community College	1.8
Lindenwood University – St. Charles	1.8
Most colleges in the E NE/W IA area	1.8
Northwest Missouri State University	1.8
Northwestern	1.8
UAT	1.8
University of Nebraska	1.8
University of Nebraska at Kearney	1.8
Upper Iowa	1.8
West Coast Baptists College	1.8

*Note:* Some respondents provided multiple responses.

*n*=57

**Table 17.*****Prior to enrolling at IWCC, how long has it been since you were last in school? (Select one)***

Last in School	Percentage
Enrolled right out of high school	50.0
Less than 1 year	10.5
1 years	11.6
2 years	3.5
3 years	1.2
4 years	3.5
5 or more years	19.8

*n*=86**Table 18.*****Why did you choose CIT as a degree program? (Please check all that apply)***

Reasons for choosing CIT	Percentage
I am interested in IT	77.9
I want to work in the IT field	70.9
I want to strengthen my skills in IT	48.8
I need it in order to get an increase in wages or get promoted at my current job	2.3
The degree will allow me to get a better job with a different employer	31.4
Other	3.5
I have not chosen CIT as a degree program	1.2

*Note:* The percentages do not add up to 100%.*n*=86*Responses from the "Other" Choice:**Dream to work on projects that benefit people (1)**Hope to be a part of the rise of AI (1)**School does not offer the program I originally wanted to enroll in (1)*



**Table 19.**

***What was your original education goal when you enrolled at IWCC? (Please select the one that best describes your goal)***

Education Goal	Percentage
Take some classes	5.8
Complete Certificate Program	10.5
Complete Diploma	8.1
Complete AA/AS degree	29.1
Transfer to a 4 year college	45.3
Other	1.2

*n=86*

*Responses from the "Other" choice:*

*Not sure yet (1)*

**Table 20.**

***What was your original career goal when you enrolled at IWCC? (Please select the one that best describes your goal)***

Career Goal	Percentage
Get a job	16.3
Get a job in IT field	81.4
Keep my job	0.0
Get a promotion and/or increase my salary/ wages at my current job	1.2
Get a better job in IT than my current IT job	0.0
Other	1.3

*n=86*

*Responses from the "Other" choice:*

*Earn Bachelors, then become officer in military (1)*

**Table 21.*****Including this current semester, how many semesters have you completed at IWCC?***

Number of semesters	Percentage
0 semesters	47.7
1 semester	34.9
2 semesters	8.1
3 semesters	4.7
4 semesters	1.2
5 semesters	2.3
6 semesters	1.2
7 semesters	0.0
8 semesters	0.0
9 semesters	0.0
10 or more semesters	0.0

*n*=86**Table 22.*****Not including this current semester, how many more semesters do you expect to complete at IWCC?***

Number of semesters	Percentage
0 semesters	1.2
1 semester	4.7
2 semesters	10.6
3 semesters	27.1
4 semesters	40.0
5 semesters	4.7
6 semesters	3.5
7 semesters	1.2
8 semesters	1.2
9 semesters	1.2
10 or more semesters	4.7

*n*=85

**Table 23.***Have you attended IWCC continuously since you first started?*

Response	Percentage
Yes	31.4
No	11.6
This is my first semester	57.0

*n=86***Table 24.***What is your anticipated graduation/program completion date?*

Response	Percentage
05/2016	1.3
12/2016	2.5
05/2017	10.1
12/2017	5.1
2017	1.3
03/2018	3.8
04/2018	1.3
05/2018	36.7
06/2018	7.6
07/2018	2.5
08/2018	8.9
12/2018	6.3
2018	5.1
05/2019	1.3
06/2019	1.3
2019	2.5
05/2020	1.3
2020	1.3

*n=79*

## RETURNING STUDENTS

This section centers on the questions for returning students including changes in their education and career goals and activities they participated in over the summer.

**Table 25.**  
*What is your current education goal?*

Education Goal	Percentage
Take some classes	1.7
Complete Certificate Program	2.7
Complete Diploma	5.2
Complete AA/AS Degree	62.1
Transfer to a 4 year college	19.0
Other	5.2

*n=58*

*Responses from the "Other" choice:*

*Complete as many degrees as possible (1)  
Not sure (1)*

**Table 26.**  
*Has your education goal changed since enrolling at Iowa Western?*

Response	Percentage
Yes	27.6
No	72.4

*n=50*

**Table 27.**  
*Why did your education goal change?*

Response	Percentage
Changed majors	31.3
Continuing my education instead	31.3
Approach taken	6.3
Become more focused within the CIT field	6.3
Decided to work for self	6.3
Decrease the education wanted	6.3
Goals changes as I learned more	6.3
Just wanted general education	6.3

*n*=16

**Table 28.**  
*What is your current career goal?*

Career Goal	Percentage
Get a job	13.8
Get a job in information technology field	65.5
Keep my current job	3.4
Get a promotion and/or increase my salary/ wages at my current job	6.9
Get a better job with a different employer within the same field as my current job	3.4
Other	6.9

*n*=58

Responses from the "Other" choice:

*Start a business (2)*  
*Continue to advance in IT (1)*  
*Repeat process (1)*

**Table 29.**  
*Has your career goal changed since enrolling at Iowa Western?*

Response	Percentage
Yes	22.4
No	77.6

*n*=58

**Table 30.**  
*Why did your career goal change?*

Response	Percentage
Altering program focus to more readily reintegrate	7.7
Because of cost will transfer to 4 year college	7.7
Changes as I have learned more	7.7
Changed my first major	7.7
Company I worked for went out of business	7.7
Good game should have a good soundtrack	7.7
Hoping to advance	7.7
IT is a very difficult field	7.7
More open jobs	7.7
Variable of life	7.7
Want something that pays good and I enjoy	7.7
Want to get a job instead of military	7.7
Wanted to create employment	7.7

*n*=13

**Table 31.**  
*What CIT activities did you participate in over the summer?*

Response	Percentage
Internship	66.7
Summer classes	16.7
Assisted with Tech Daze PC Repair class	5.6
Home network setup	5.6
InfoTec seminar	5.6

*n*=18

**Table 32.**  
*Did you have an internship over this past summer?*

Response	Percentage
Yes	20.7
No	79.3

*n*=58

**Table 33.**  
*Now that you have completed at least one semester in the CIT program, what activities or interactions would you like to see/participate in moving forward?*

Response	Percentage
Cyber Defense Competition done more often	23.1
Involve self more	15.4
More hands-on activities	11.5
Meetings with local entrepreneurs/employers	7.7
More programming activities	7.7
All classes available all semesters	3.8
Incorporate a hardware class	3.8
More data center tours	3.8
More game-centric programming courses	3.8
Need more IT tutors	3.8
Widen my knowledge of CIT	3.8

*n*=26

**Table 34.**  
*If you have referred other people to the CIT program, how many have you referred?*

Number of people	Percentage
1-3 people	43.1
4-6 people	3.4
More than 6 people	1.7
I have not referred anyone	51.7

*n*=58



## **Appendix E:**

### **Student Survey Evaluation Report: Spring 2014**



## METHODOLOGY

The first student survey, as part of the student evaluation, was distributed to students who took classes in the Information Technology – Credentials to Careers (ITC<sup>2</sup>) Project in the Spring of 2014. The surveys were distributed to 53 students by paper at the end of the Spring semester. Following the administration of this survey, it was decided to break the survey into two parts; a new student survey in the fall and a returning student survey in the spring.

Students were asked about their educational and career goals, why they decided to enroll at Iowa Western Community College and how they heard about the program. Students were asked questions about the advising and registration process. Specifically, students were asked whether they knew who their advisor was, the amount of time spent with their advisor, and how helpful their advisor was to their education.

Students were also asked to rate the helpfulness of Computer Information Technology (CIT) classes they have taken, rate their instructors and various aspects of the program (e.g., quality of CIT instruction, computer equipment, opportunities to interact with students and faculty). In addition, students were asked about their engagement outside the classroom (e.g., participation in any events or organizations), school attendance, and available resources. Finally, students were asked to reflect on their time at Iowa Western Community College and in the ITC<sup>2</sup> program. In particular, students were asked to describe lessons they had learned and whether they had any suggestions on how to improve the program.

## RESULTS

*Enrollment/Goals.* Students responding to the survey indicated that they were in a variety of CIT focus areas including Network and Support Administration (43.4%), Application and Web Programming (28.3%), and Computer Science (13.2%; see Table 1). Respondents were asked how they heard about Iowa Western Community College (IWCC). One-third (37.7%) have previously taken classes at IWCC, 32.1% heard about it from a friend, and 32.1% heard about it from a family member (see Table 2).

Of the students responding to the survey, 73.6% indicated they are currently employed (see Table 3). Respondents were also asked to indicate their level of employment. Almost half (49.0%) indicated they are employed part time, 25.5% indicated they are employed full time, and 25.5% indicated they are not employed (see Table 4).

When asked why did they enroll at IWCC, over half (64.2%) of the respondents indicated it was because of cost savings, 62.3% indicated IWCC is close to home, and 35.8% indicated they have taken classes at IWCC before (see Table 5). Over half (60.4%) of the students indicated that they considered other institutions before enrolling at IWCC (see Table 6). The top institutions students considered were University of Nebraska – Omaha, ITT Tech, Bellevue, University of Nebraska – Lincoln, Iowa State University, and Metropolitan Community College (see Table 7).

One-third (37.7%) of the students enrolled right out of high school, while another third (32.1%) had been out of school 5 or more years (see Table 8). Students chose CIT as a degree program because they are interested in IT (74.5%), they want to work in the IT field (70.6%), and they want to strengthen their skills in IT (52.9%, see Table 9).

The respondents were asked to indicate their original educational goal. Over half (63.5%) responded that their original goal was to get an AA/AS degree, 21.2% responded transfer to a 4 year college, and 5.8% responded complete a diploma (see Table 10). Respondents were also asked to indicate their original career goal. Over half (62.3%) responded that their career goal was to get a job in the IT field, 18.9% responded get a job, and 9.4% responded get a better job in IT than my current IT job (see Table 11).

Approximately three-fourths (73.7%) of the students reported that they had completed between two to four semester at IWCC (see Table 12). When asked how many semesters they still expected to complete, 11.3% were done when the current semester ended, 60.4% indicated that they expected to complete one to two semesters, and 28.3% indicated that they expected to enroll for three or more semesters (see Table 13). The majority (71.7%) of students indicated that they had attended IWCC continuously since starting at IWCC (see Table 14).

*Advising/Registration.* The majority (96.2%) of survey participants knew who their IWCC academic advisor was (see Table 15). These students predominantly agree that their advisor was friendly (86.8%), helpful (83.1%), knowledgeable about program requirements (84.6%), knowledgeable about requirements for transferring to another college (73.6%), available (78.9%), accessible (81.1%), and helped students set goals (62.3%).

Slightly more than half (54.7%) of students indicated that they met with their advisor at least once a semester, 11.3% met with their advisor monthly, and 3.8% met with their advisor once every other week. A few students (17.0%) reported that they had not met with an advisor (see Table 17). In general, when meeting with advisors, 52.8% reported that their meetings last 0-15 minutes, 26.4% reported meetings last between 16-30 minutes, and 1.9% reported meetings last between 31-45 minutes (see Table 18).

The majority (86.8%) of students thought that registering for class is easy, 83.1% thought the instructions for registering online are easy to understand, and 35.9% of students indicated that they preferred to have help when registering for their classes (see Table 19). Respondents provided ways that the registration process can be improved including offer more classes/times classes are offered (22.2%), prerequisite recognition (22.2%), and advisors knowing which classes to take (16.7%; see Table 20). Respondents also provided ways that the advising process can be improved including more contact between the advisor and student (100.0%; see Table 21).

*Evaluation of Courses.* When asked to rate how helpful CIT courses have been in improving their employable skills, the majority of students who have taken a specific class indicated that the particular class was either fairly or very helpful (see Table 22). Further, the majority of students found instructors to be friendly (96.2%) and helpful (90.4%), knowledgeable about the subject matter (94.4%), easily accessible (88.4%) and available to answer students' questions (96.3%), and willing to provide guidance to students as needed (90.6%; see Table 23).

*Program and Facilities Evaluation.* The majority of students also indicated that they are satisfied with the CIT program overall (88.7%), quality of CIT instruction (86.8%), CIT courses offered (88.5%), and availability of CIT courses (77.4%), classroom size (92.4%), and lab space (86.8%; see Table 24).

Students also reported that they enjoyed learning about various software programs used in the CIT courses including DreamSpark (85.2%), Linux (83.0%), VMWare (82.9%), Adobe CS 6 (81.5%), and Visual Studio (80.0%; see Table 25).

*Engagement.* Students were also asked whether they participated in any IWCC extracurricular activities. Approximately one-fifth (21.2%) of respondents reported that they participated in IWCC clubs or organizations (see Table 26). Approximately one-fifth (17.6%) also reported that they participated in IWCC events or contests (see Table 27). Clubs or organizations that students participated in included Phi Theta Kappa (36.3%), Intramurals (36.3%), and Anime Club (27.3%; see Table 28). Events or contests that students participated in included Cyber Defense Competition (22.2%), IWCC Lip-Sync (11.1%), and Casino Night event (11.1%; see Table 29).

When asked to rate their class attendance, the majority (63.4%) of students reported that they rarely or never missed class, 34.6% reported some absences, and 1.9% reported excessive absences (see Table 30). Reasons students were unable to attend class included illness (58.5%), transportation issues (28.3%), and unable to or couldn't get time off (22.6%; see Table 31).

Overall students reported that the following IWCC resources were helpful: financial aid services/counseling (97.6%), academic advising (95.2%), supplemental instruction (94.4%), and workshops (100.0%; see Table 32). Almost all (92.3%) of the students responded that they have access to everything they need in order to learn (see Table 33). For the students who do not have access to everything they need in order to learn, they indicated they needed a car (25.0%), an upgrade to the equipment in the art center (25.0%), and that their personal computers have viruses (25.0%; see Table 34).

Finally, when asked to list the most valuable lessons they have learned at IWCC, students reported that they learned to use time wisely/don't procrastinate/study skills (37.5%), working hard (25.0%), and career options (12.5%; see Table 35). When asked to list the most valuable lessons they have learned in the CIT program, students reported good habits such as studying, not procrastinating, and attendance (43.9%), programming and programming documentation (26.8%), and available resources (14.6%; see Table 36).

Some students suggested the following as ways services, interactions, and information could be improved: spend more time on staff and equipment (30.0%), simpler ROC system/improve messaging (20.0%), and more faculty and advisors (10.0%; see Table 37). When asked to offer suggestions on how to improve the CIT program at IWCC, students proposed fixing SQL so it is not as outdated (20.0%), more equipment for projects and expansion of labs (20.0%), and dual screens for students (10.0%; see Table 38). Lastly, the majority (90.4%) of students indicated IWCC staff could contact them.

The following tables present the descriptive statistics for each of the questions asked in the spring student survey.

## ENROLLMENT/GOALS

This section centers around enrollment and employment statistics, including current students enrolled at Iowa Western Community College, students who are currently employed, and students' specific CIT focus areas. Further, this section includes educational and employment goals following enrollment at Iowa Western Community College.

**Table 1.**  
***What is your CIT Focus Area?***

Focus Area	Percentage
Application and Web Programming	28.3
Computer Science	13.2
Desktop Certificate	1.9
Network and Support Administration	43.4
System Administration Certificate/Desktop Support Certificate	1.9
Graphic Communications	7.6
Not in CIT	3.8

*n*=53

**Table 2.*****How did you hear about Iowa Western Community College? (Select all that apply)***

Response	Percentage
Television	26.4
Radio	26.4
Social Media	13.2
School Counselor or Advisor	24.5
I have previously taken classes at IWCC	37.7
Employer/Work	1.9
I heard about it from a friend	34.0
I heard about it from a family member	32.1
Other	15.1

*Note:* The percentages do not add up to 100%.*n=53**Responses from the "Other" choice:**Live in Council Bluffs (4)**Other school staff (coaches)/events (2)**Independent internet research (1)**Parents employed at IWCC (1)***Table 3.*****Are you currently employed? (Select one)***

Response	Percentage
Yes	73.6
No	26.4

*n=53***Table 4.*****If you are employed, are you a...***

Employment	Percentage
Part-time employee	49.0
Full-time employee	25.5
Not employed	25.5

*n=51*

**Table 5.**  
***Why did you enroll at Iowa Western Community College? (Select all that apply)***

Reasons for Enrollment	Percentage
Close to home	62.3
Cost Savings	64.2
Cutting edge technology	17.0
Challenging classes	11.3
I've taken classes at IWCC in the past	35.8
I am a designated TAA worker	0.0
Easy transfer to another college	22.6
IWCC has a close relationship with business and industry	18.9
Other	9.4

*Note:* The percentages do not add up to 100%.

*n=53*

*Responses from the "Other" choice:*

*Scholarship/GI Bill/Employer pays tuition (3)*

*English speaking teachers (1)*

*Unemployed (1)*

**Table 6.**  
***Before you enrolled at IWCC, did you consider attending other institutions?***

Response	Percentage
Yes	60.4
No	39.6

*n=53*

**Table 7.***If you answered yes to question 6, what other institutions did you consider?*

Top 6 Responses	Number
University of Nebraska – Omaha	11
ITT Tech	5
Bellevue	5
University of Nebraska – Lincoln	3
Iowa State University	3
Metropolitan Community College	3

**Table 8.***Prior to enrolling at IWCC, how long has it been since you were last in school? (Select one)*

Last in School	Percentage
Enrolled right out of high school	37.7
Less than 1 year	9.4
1 years	7.5
2 years	9.4
3 years	1.9
4 years	1.9
5 or more years	32.1

*n*=53



**Table 9.*****Why did you choose CIT as a degree program? (Please check all that apply)***

Response	Percentage
I am interested in IT	74.5
I want to work in the IT field	70.6
I want to strengthen my skills in IT	52.9
I need it in order to get an increase in wages or get promoted at my current job	3.9
The degree will allow me to get a better job with a different employer	27.5
Other (please specify)	9.8
I have not chosen CIT as a degree program	5.9

Note: The percentages do not add up to 100%.

*n*=53

Responses from the "Other" choice:

*Certification for current job (1)*

*Graphic Design (1)*

*In demand (1)*

*To get a degree in what I already do (1)*

**Table 10.*****What was your original educational goal when you enrolled at IWCC? (Please select the one that best describes your goal)***

Educational Goal	Percentage
Take some classes	5.8
Complete Certificate Program	1.9
Complete Diploma	5.8
Complete AA/AS degree	63.5
Transfer to a 4 year college	21.2
Other	1.9

*n*=52

Responses from the "Other" choice:

*Just graduate finally (1)*

**Table 11.**

***What was your original career goal when you enrolled at IWCC? (Please select the one that best describes your goal)***

Career Goal	Percentage
Get a job	18.9
Get a job in IT field	62.3
Keep my job	0.0
Get a promotion and/or increase my salary /wages at my current job	3.8
Get a better job in IT than my current IT job	9.4
Other	5.7

*n*=52

Responses from the "Other" choice:

Create my own design company (1)

**Table 12.**

***Including this current semester, how many semesters have you completed at IWCC?***

Semesters	Percentage
1 semester	7.5
2 semesters	32.1
3 semesters	11.4
4 semesters	30.2
5 semesters	3.8
6 semesters	7.5
8 semesters	7.5

*n*=52

**Table 13.***Not including this current semester, how many more semesters do you expect to complete?*

Semesters	Percentage
0 semesters	11.3
1 semester	13.2
2 semesters	47.2
3 semesters	11.3
4 semesters	11.3
5 semesters	1.9
10 semesters	1.9
Many semesters	1.9

*n*=53**Table 14.***Have you attended IWCC continuously since you first started?*

Response	Percentage
Yes	71.7
No	22.6
This is my first semester	5.7

*n*=53

## ADVISING/REGISTRATION

This section describes students' opinions of Iowa Western Community College advising staff and registration process.

**Table 15.**  
*Who is your CIT advisor? (Select one)*

CIT Advisor	Percentage
William Barrett	20.8
Melanie Butterbaugh	18.9
Bev Eckel	11.3
John Magill	34.0
Carolyn Storm	7.5
Gerry Welding	0.0
Not Listed	3.8
I don't know who my advisor is	3.8

*n*=53

**Table 16.**

*Please indicate the extent with which you agree or disagree with each of the following statements about your advisor.*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total Agree
My advisor is friendly	53	1.9	1.9	9.4	22.6	64.2	86.8
My advisor is helpful	53	1.9	1.9	13.2	18.9	64.2	83.1
My advisor is knowledgeable about program requirements	52	1.9	3.8	9.6	15.4	69.2	84.6
My advisor is knowledgeable about requirements for transferring to another college	53	1.9	1.9	22.6	30.2	43.4	73.6
My advisor is available	52	1.9	1.9	17.3	32.7	46.2	78.9
My advisor is accessible	53	1.9	1.9	15.1	28.3	52.8	81.1
My advisor helped me set goals	53	1.9	1.9	34.0	17.0	45.3	62.3

*Note:* Values reflect percentages.

**Table 17.**

*How often do you meet with your advisor? (Select one)*

Meeting Times	Percentage
Once per semester	54.7
Monthly	11.3
Once every other week	3.8
Once per week	5.7
More than once per week	7.5
I have not met with an advisor	17.0

*n*=53

**Table 18.**  
*On average, meetings with the advisor lasts approximately: (Select one)*

Meeting Times	Percentage
0-15 minutes	52.8
16-30 minutes	26.4
31-45 minutes	1.9
46-60 minutes	0.0
Over an hour	1.9
I have not met with an advisor	17.0

*n*=53

**Table 19.**  
*Please indicate the extent with which you agree or disagree with each of the following statements.*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total Agree
Registering for classes is easy	53	1.9	1.9	9.4	22.6	64.2	86.8
Instructions for registering online are easy to understand	53	1.9	1.9	13.2	18.9	64.2	83.1
I prefer to have help when registering for classes	53	11.3	24.5	28.3	17.0	18.9	35.9

*Note:* Values reflect percentages.

**Table 20.**  
*How can the registration process be improved?*

Response	Percentage
Offer more classes/times classes are offered	22.2
Prerequisite recognition	22.2
Advisors knowing which classes to take	16.7
Paper copies of schedules	11.1
Improving class searchers (sorting by majors)	11.1
Comment specifically for athletes	5.6
Registering for classes before deadline	5.6
Simplify class names	5.6

*n*=18

**Table 21.**  
*How can the advising process be improved?*

Response	Percentage
More contact between advisor and student	100.0

*n*=3

## EVALUATION OF COURSES

This section centers on the helpfulness of the CIT program classes.

**Table 22.**

*Please indicate how helpful the following classes have been in improving your employable skills?*

Statements	<i>n</i>	Not at all Helpful	Slightly Helpful	Fairly Helpful	Very Helpful	Have Not Taken
CSC 114	39	7.7	12.8	33.3	46.1	13
CSC 110	33	9.0	33.3	12.1	45.4	19
CSC 127	18	0.0	11.1	22.2	66.7	34
CSC 121	32	0.0	9.4	25.0	65.6	20
CIS 332	37	0.0	11.1	38.9	50.0	15
NET 612	12	0.0	0.0	8.3	91.7	40
NET 142	20	0.0	15.0	20.0	65.0	32
CIS 139	36	0.0	12.6	18.7	68.7	36
CIS 144	5	0.0	0.0	60.0	40.0	47
CIS 171	10	0.0	10.0	60.0	30.0	43
NET 785	19	0.0	15.8	36.9	47.3	32
NET 313	23	0.0	4.3	21.8	73.9	29
NET 343	9	0.0	11.1	33.3	55.6	42
NET 413	22	0.0	4.6	13.6	81.8	30
NET 217-220	22	0.0	4.6	9.0	86.3	30
CIS 207	24	0.0	20.8	16.6	62.6	29
CIS 134	23	0.0	8.7	26.0	65.2	29
CIS 213	18	0.0	11.1	38.9	50.0	34
CIS 227	3	0.0	0.0	66.7	33.3	49
CIS 215	4	0.0	25.0	25.0	50.0	48
CIS 780	12	0.0	16.7	16.7	66.6	40
NET 810	10	10.0	0.0	30.0	60.0	42
GRA 173	2	0.0	0.0	0.0	100.0	51
GRA 121	2	0.0	0.0	0.0	100.0	51
GRA 137	2	0.0	0.0	0.0	100.0	50
GRA 140	1	0.0	0.0	0.0	100.0	52
GRA 949	2	0.0	0.0	0.0	100.0	51

*Note:* Values reflect percentages.



**Table 23.**

*Please indicate the extent with which you agree or disagree with each of the following about your CIT instructors.*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total Agree
My instructors are friendly	52	3.8	0.0	0.0	32.7	63.5	96.2
My instructors are helpful	52	3.8	0.0	5.8	30.8	59.6	90.4
My instructors are knowledgeable about subject matter	53	3.8	0.0	1.9	30.2	64.2	94.4
My instructors are available to answer questions about class, homework, or assignments	53	1.9	1.9	0.0	32.1	64.2	96.3
My instructors are accessible	52	3.8	0.0	7.7	26.9	61.5	88.4
My instructors provide guidance as needed	53	3.8	0.0	5.7	34.0	56.6	90.6

*Note:* Values reflect percentages.

## PROGRAM AND FACILITIES EVALUATION

This section centers on the CIT program, the facilities associated with the program, and the software used in the program.

**Table 24.**  
*Please indicate how satisfied you are with each of the following.*

Statements	<i>n</i>	Very Dissatisfied	Dissatisfied	Neither Satisfied nor Dissatisfied	Satisfied	Very Satisfied
CIT Program	53	0.0	0.0	11.3	30.2	58.5
Quality of CIT Instruction	53	0.0	1.9	11.3	30.2	56.6
Availability of CIT courses	53	0.0	9.4	13.2	32.1	45.3
CIT courses that are offered	53	0.0	1.9	9.6	40.4	48.1
Computer Equipment	53	0.0	1.9	15.4	40.4	42.3
F116-118 Computer Equipment	53	0.0	2.0	27.5	33.3	37.3
F107 Computer Equipment	53	0.0	1.9	15.4	36.5	46.2
Virtualized Servers	53	0.0	1.9	17.0	34.0	47.2
CCNA equipment	53	0.0	0.0	40.4	23.1	36.5
Lab Space	53	0.0	0.0	13.2	39.6	47.2
Size of classes	53	0.0	0.0	7.5	26.4	66.0
Opportunities to interact with other students	53	0.0	0.0	11.3	22.6	66.0
Availability of CIT faculty outside of classroom	53	0.0	1.9	17.0	28.3	52.8

*Note:* Values reflect percentages.

**Table 25.***Please indicate the extent with which you enjoyed learning the following software offered.*

Statements	<i>n</i>	Not Much	Little	Somewhat	Much	A Great Deal	Have Not Used
DreamSpark	27	0.0	7.4	7.4	18.6	66.6	25
Remote Access VPN	38	0.0	10.6	15.8	26.3	47.3	14
NetLab	26	0.0	0.0	26.9	26.9	46.2	26
Visual Studio	25	0.0	4.0	16.0	28.0	52.0	27
Adobe CS 6	27	3.7	0.0	14.8	11.1	70.4	25
Dreamweaver	26	3.8	7.7	11.6	19.2	57.7	26
MS Office	47	0.0	4.3	25.5	14.9	55.3	5
VMware	41	0.0	4.9	12.2	17.0	65.9	10
Linux	41	0.0	9.7	7.3	22.0	61.0	11

*Note:* Values reflect percentages.

## ENGAGEMENT

This section gauges students' involvement with Iowa Western Community College extra-curricular activities including campus clubs, organizations, events, and contests. This section also includes students' class attendance and opinion of academic resources.

**Table 26.**  
*Do you participate in any IWCC clubs or organizations?*

Response	Percentage
Yes	21.2
No	78.8

*n*=52

**Table 27.**  
*Do you participate in any IWCC events or contests?*

Response	Percentage
Yes	17.6
No	82.4

*n*=52

**Table 28.**  
*Which IWCC clubs or organizations do you participate in?*

Response	Percentage
Phi Theta Kappa	36.3
Intramurals	36.3
Anime Club	27.3
Eagles	9.1
College against cancer	9.1
Ignition	9.1

*Note:* Some respondents provided multiple responses.

*n*=11

**Table 29.**  
*Which IWCC events or contests have you participated in?*

Response	Percentage
Cyber Defense Competition	22.2
Anime Club movie night	11.1
Surveys	11.1
IWCC Lip-Sync	11.1
IT Logo	11.1
Hair Donation	11.1
Casino Night event	11.1

*n*=9

**Table 30.**  
*In general, how would you rate your class attendance?*

Absences	Percentage
Excessive absences	1.9
Some absences	34.6
Rarely absent	44.2
Never miss class	19.2

*n*=52

**Table 31.**  
*In general, what is the main reason for not attending classes? (Select all that apply)*

Reasons	Percentage
Illness	58.5
Childcare issues	5.7
Transportation issues	28.3
Need to work/can't get time off	22.6
Other	17.0

Note: The percentages do not add up to 100%.

*n*=53

Responses from the "Other" choice:

Motivation (3)  
Family Medical (2)  
Money (1)  
Weather (1)

**Table 32.***Please indicate the extent with which each of the following resources has helped you.*

Statements	<i>n</i>	Not at all Helpful	Slightly Helpful	Fairly Helpful	Very Helpful	Have Not Taken
Tutoring	4	50.0	25.0	25.0	0.0	48
Financial Aid Services/Counseling	42	0.0	2.4	21.4	76.2	9
Academic Advising	42	0.0	4.8	38.1	57.1	10
Supplemental Instruction	18	5.6	0.0	33.3	61.1	34
Workshops	12	0.0	0.0	41.7	58.3	40
Other	3	0.0	0.0	100.0	0.0	36

*Note:* Values reflect percentages.*Responses from the "Other" choice:**None listed.***Table 33.***Do you have access to everything you need in order to learn?*

Response	Percentage
Yes	92.3
No	7.7

*n*=52**Table 34.***If no, what do you need?*

Response	Percentage
A car	25.0
An upgrade to the equipment in the art center	25.0
In using the Adobe software, our classes were hybrid but we only has limited access on personal drives`	25.0
My personal computers have viruses	25.0

*n*=4

## VALUABLE LESSONS AND IMPROVEMENT

This section focuses on the value of students' learning experiences at Iowa Western Community College and the CIT program. Students further provided suggestions and comments on ways in which IWCC can improve both the CIT program and as a college overall.

**Table 35.**

*To date, what has been the most valuable lesson that you have learned at IWCC?*

Response	Percentage
Use time wisely/don't procrastinate/study skills	37.5
Working hard	25.0
Career options	12.5
Computer work	12.5
Support system/Assistance (peer, family, etc.)	12.5

*n*=40

**Table 36.**

*To date, what has been the most valuable lesson that you have learned in the CIT program?*

Response	Percentage
Good habits (studying, not procrastinating, attendance)	43.9
Programming and programming documentation	26.8
Linux and miscellaneous computer programs	14.6
Available resources	14.6

*n*=41

**Table 37.**

*Thinking about all of your experiences with the various staff and processes at IWCC over time, what can we do to improve our services, interactions, information, etc.?*

Response	Percentage
Spend more time on staff and equipment	30.0
Simpler ROC system/improve messaging	20.0
More faculty and advisors	10.0
More office hours	10.0
More attentive email responses	10.0
Diverse foreign language options	10.0
Not tutoring based on financial circumstances	10.0

*n*=10

**Table 38.**

*Do you have any suggestions or comments for improving the CIT program?*

Response	Percentage
Fix SQL (not as outdated)	20.0
More equipment for projects and expansion of labs	20.0
A more thorough Linux course	10.0
Dual screens for students	10.0
Less emphasis on programming packages	10.0
More class options for classes that only have one offering	10.0
More detail and less volume of information	10.0
Tutors would help for when faculty aren't available	10.0

*n*=10



**Table 39.**  
*Can IWCC staff contact you if needed?*

Response	Percentage
Yes	90.4
No	9.6

*n*=52



**Appendix F:**

**Student Survey Evaluation Report: Spring 2015**

## METHODOLOGY

The spring student survey, which comprises a portion of the overall student evaluation, was distributed to students who took ITC<sup>2</sup> Project designated classes in the Spring of 2015. Online surveys were distributed at the end of Spring 2015 semester to approximately 80 students via an electronic link.

Students were asked questions about the length of time they have been at IWCC, how much more time they expected to spend at IWCC and to estimate an expected date of graduation. Students were asked questions about the advising and registration process at IWCC. Specifically, students were asked whether they knew who their advisor was, how much time they spent with their advisor, and to share whether they thought their advisor was knowledgeable and helpful. Students were also asked to rate whether Computer Information Technology (CIT) classes taken were helpful in improving their employable skills and to rate their instructors and various aspects of the program (e.g., quality of CIT instruction, computer equipment, opportunities to interact with students and faculty).

Students were also asked about internships and activities they have participated in since enrolling at IWCC. In addition, students were asked about their engagement/activities outside the classroom (e.g., participation in any events or organizations), school attendance, and rate whether various resources provided by IWCC were helpful. Finally, students were asked to reflect on their time at Iowa Western Community College and in the ITC<sup>2</sup> program. In particular, students were asked to describe lessons they had learned and whether they had any suggestions on how to improve the program. In the end, students were asked whether they anticipated taking any additional IWCC CIT program credits in the next year. Students that indicated they would not take additional program credit within the next year were asked about reasons for not attending.

## RESULTS

*Enrollment and Attendance.* Students responding to the survey indicated that they were in a variety of CIT focus areas including Network and System Administration (35.1%), Application and Web Programming (28.5%), and Graphic Communications (14.9%; see Table 1). Slightly more than half (54.1%) of the students reported that they had completed between two to four semesters at IWCC (see Table 2). When asked how many semesters they still expected to complete, 17.6% were done when the current semester ended, 52.7% indicated that they expected to complete one to two semesters, 12.2% expected to enroll for at least three more semesters, and 17.7% indicated that they expected to enroll for four or more semesters (see Table 3).

The majority (82.4%) of students indicated that they had attended IWCC continuously since starting at IWCC (see Table 4). Approximately one-third (36.6%) of the students expected to graduate or complete their program by the end of 2015, 40.6% expected to graduate or complete by June of 2016, and the remainder of the students indicated that they expected to graduate or complete by the end of 2017 (see Table 5).

*Advising and Registration.* The majority (97.4%) of survey participants knew who their IWCC academic advisor was (see Table 6). These students predominantly agreed that their advisor was friendly (90.4%), helpful (84.6%), knowledgeable about program requirements (91.3%), available/accessible (87.1%), knowledgeable about requirements for transferring to another college (77.1%), and help students set goals (69.7%; see Table 7).

Slightly more than half (52.7%) of students indicated that they met with their advisor at least once a semester, 10.8% met with their advisors monthly, 13.5% met with their advisors once every other week and 9.5% met with their advisors one or more times per week. A few students (13.5%) reported that they had not met with an advisor (see Table 8). In general, when meeting with advisors, 52.7% reported that their meetings last between 0-15 minutes, 28.4% reported meetings last between 16-30 minutes, and 5.4% reported that meetings last 31-45 minutes (see Table 9).

The majority (75.7%) of students thought that registering for class is easy, 81.1% thought instructions for registering online are easy to understand, and only 29.8% of students indicated that they preferred to have help when registering for their classes (see Table 10). Students were asked to provide ways the registration process could be improved. Those ways include listing program classes needed on registration page (23.5%), better registration hours (11.8%), simplifying the system (11.8%), and clearer instructions (5.9%; see Table 11). Students were also asked to provide ways the advising process could be improved. Those ways included advisors are already helpful (60.0%), advisors need to talk to students more (60.0%), advisors need to know the classes (40.0%), and advisors need more flexible hours (20.0%; see Table 12).

*Evaluation of Courses.* Students were asked to rate how helpful each of the CIT required classes they have taken have been in improving their employable skills. With the exception of a few business, marketing, and management classes, the majority of students indicated that their CIT classes were helpful in improving skills needed for employment (see Table 13).

Overall, students found their instructors to be friendly (97.3%), helpful (93.3%), knowledgeable (94.6%), available to answer students' questions (93.2%), accessible (91.8%), and provided guidance as needed (91.9%; see Table 14).

*Program and Facilities Evaluation.* The majority of students also indicated that they were satisfied with the CIT program overall (94.3%), quality of CIT instruction (92.7%), CIT courses offered (89.7%), and availability of CIT courses (86.8%), classroom size (94.6%), and lab space (90.1%; see Table 15). In general, students also reported that they enjoyed learning about various software programs used in CIT courses (see Table 16).

*Activities.* Overall, students reported that they considered the various activities (e.g., career mixer with AIM, Yahoo! Data center faculty tour, internship opportunities) offered through the CIT program valuable (see Table 17).

*Internships.* Approximately one-fourth (24.3%) of the students reported that they were able to secure at least one internship in the past year, 8.1% reported at least two internships, and 1.4% secured three internships (see Table 18). Of these students, only 4.1% thought that the internship resulted in full time employment (see Table 19). Students reported that they will be working full time at WRK Systems, Inc. (25.0%), Adecco/Google (12.5%), and Five Nine Technology Group (12.5%), among others (see Table 20).

*Engagement.* Students were also asked whether they participated in any IWCC extracurricular activities. Approximately one-third (37.8%) of students reported that they participated in IWCC clubs or organizations (see Table 21). Almost half (41.9%) of the students indicate that they had participated in IWCC events or contests (see Table 22). The clubs or organizations students participated in include Nerd Squad (40.7%), Anime Club (11.1%), CIT Club (11.1%), Phi Theta Kappa (11.1%), and Vets Club (11.1%; see Table 23). The events students participated in include the Cyber Defense Competition (44.8%), Career Fairs (17.2%), Code Kata (10.3%), and mixers (10.3%; see Table 24).

When asked to rate their class attendance, the majority (58.1%) of students reported that they rarely or never missed class, 37.8% reported some absences, and 4.1% reported excessive absences (see Table 25). Reasons for not attending classes such as illness (54.1%), unable to or couldn't get time off (37.8%), problems with transportation (21.6%), and childcare issues (6.8%) were given (see Table 26).

Overall, students reported that the following IWCC resources were helpful: financial aid services/counseling (86.0%), academic advising (88.9%), supplemental instruction (77.8%), tutoring (66.6%), and workshops (73.7%; see Table 27).

The majority (95.9%) of students indicated that they have access to everything they need in order to learn (see Table 28). For the students that indicated that they did not have everything they needed in order to learn, no student provided information about what they needed in order to learn (see Table 29).

*Valuable Lessons and Improvement.* Finally, when asked to list the most valuable lessons they have learned at IWCC, a few students reported that they learned to apply themselves (e.g., work

ethic; 15.6%), not to procrastinate (11.1%), and about organization skills (11.1%; see Table 30). When asked to list the most valuable lessons they have learned in the CIT program, a few students reported the improvement of Linux skills (11.8%), learning to be successful (11.8%), and networking (11.8%; see Table 31).

Some students suggested the following as ways services, interactions, and information could be improved: grading the assignments (15.4%), better communication (7.7%), and allowing staff to be more open with students (7.7%; see Table 32). Some students also indicated that more hands on projects would improve the CIT program (16.7%; see Table 33).

Over three-fourths (83.6%) of the students indicated it was okay for IWCC staff to contact them (see Table 34). The majority (80.8%) of students expected to obtain IWCC CIT program credits within the next year (see Table 35). The remaining students are not going to continue because they have completed their program of study (78.6%) or are moving/not attending (21.4%; see Table 36).

The following tables present the descriptive statistics for each of the questions asked in the spring student survey.

## ENROLLMENT

This section centers around enrollment, including current students enrolled at Iowa Western Community College, students who are currently employed, and students' specific CIT focus areas.

**Table 1.**  
*What is your CIT Focus Area?*

CIT Focus	Percentage
Application Programming (Assoc. of Arts)	5.4
Application and Web Programming (Assoc. of Applied Science)	28.5
Computer Networking (Assoc. of Arts)	6.8
Desktop Support Certificate (Certificate)	0.0
E-Commerce (Assoc. of Arts)	0.0
Graphic Communications (Assoc. of Applied Science)	14.9
Management Information Systems (Assoc. of Arts)	6.8
Network and System Administration (Assoc. of Applied Science)	35.1
Programming Certificate (Certificate)	1.4
System Administration Certificate (Certificate)	0.0
Web Programming (Assoc. of Arts)	1.4
Other	0.0

*n*=74

**Table 2.***Including this current semester, how many semesters have you completed at IWCC?*

Semesters	Percentage
0 semesters	1.4
1 semester	9.5
2 semesters	28.4
3 semesters	10.8
4 semesters	14.9
5 semesters	6.8
6 semesters	9.5
7 semesters	6.8
8 semesters	9.5
9 semesters	0.0
10 or more semesters	2.7

*n*=74**Table 3.***Not including this current semester, how many more semesters do you expect to complete?*

Semesters	Percentage
0 semesters	17.6
1 semester	18.9
2 semesters	33.8
3 semesters	12.2
4 semesters	9.5
5 semesters	4.1
6 semesters	2.7
7 semesters	0.0
8 semesters	1.4
9 semesters	0.0
10 or more semesters	0.0

*n*=74



**Table 4.***Have you attended IWCC continuously since you first started?*

Response	Percentage
Yes	82.4
No	13.5
This is my first semester	4.1

*n*=74**Table 5.***What is your anticipated graduation/program completion date?*

Response	Percentage
05/2015	14.9
07/2015	1.4
08/2015	5.4
12/2015	14.9
04/2016	4.1
05/2016	35.1
06/2016	1.4
08/2016	1.4
12/2016	6.8
01/2017	2.7
05/2017	8.1
12/2017	1.4
Unknown	2.7

*n*=74

## ADVISING/REGISTRATION

This section describes students' opinions of Iowa Western Community College advising staff and registration process. Further, this section includes students' opinions and satisfaction with CIT software, CIT classes, and CIT instructors.

**Table 6.**  
*Who is your CIT advisor? (Select one)*

Advisors	Percentage
William Barrett	21.6
Melanie Butterbaugh	9.5
Amy Dillard	10.8
John Magill	23.0
Carolyn Storm	12.2
Gerry Welding	0.0
Christie Keller	0.0
Connie Jones	20.3
Not Listed	0.0
I don't know who my advisor is	2.7

*n*=74

**Table 7.**

*Please indicate the extent with which you agree or disagree with each of the following statements about your advisor.*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total Agree
My advisor is friendly	71	7.0	1.4	1.4	20.0	70.4	90.4
My advisor is helpful	70	7.1	1.4	2.9	24.3	64.3	84.6
My advisor is knowledgeable about program requirements	69	7.2	1.4	0.0	24.6	66.7	91.3
My advisor is knowledgeable about requirements for transferring to another college	61	8.2	1.6	13.1	27.9	49.2	77.1
My advisor is available/accessible	70	7.1	1.4	4.3	27.1	60.0	87.1
My advisor helped me set goals	66	7.6	3.0	20.0	22.7	47.0	69.7

*Note:* Values reflect percentages.

**Table 8.**

*How often do you meet with your advisor? (Select one)*

Meet Times	Percentage
Once per semester	52.7
Monthly	10.8
Once every other week	13.5
Once per week	5.4
More than once per week	4.1
I have not met with an advisor	13.5

*n*=74

**Table 9.***On average, meetings with the advisor lasts approximately: (Select one)*

Time Periods	Percentage
0-15 minutes	52.7
16-30 minutes	28.4
31-45 minutes	5.4
46-60 minutes	0.0
Over an hour	0.0
I have not met with an advisor	13.5

*n*=74**Table 10.***Please indicate the extent with which you agree or disagree with each of the following statements.*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total Agree
Registering for classes is easy	74	4.1	5.4	14.9	41.9	33.8	75.7
Instructions for registering online are easy to understand	74	4.1	2.7	12.2	52.7	28.4	81.1
I prefer to have help when registering for classes	74	14.1	17.6	39.2	17.6	12.2	29.8

*Note:* Values reflect percentages.

**Table 11.**  
*How can the registration process be improved?*

Responses	Percentage
List of program classes needed on registration page	23.5
Better registration hours (ex: not 1am)	11.8
Simplify the system	11.8
Classes listed as unavailable	5.9
Clearer instructions	5.9
Combine the view and register sections	5.9
Group “Register for classes” & “Search for classes”	5.9
Have longer time sessions	5.9
Make it easier to keep track of when classes are	5.9
More useful for those who don’t know the numbers	5.9
More filtering options	5.9
Register online for internship class	5.9
State better what you are signing up for	5.9

Note: Some respondents provided multiple responses.  
n=17

**Table 12.**  
*How can the advising process be improved?*

Responses	Percentage
Advisors are helpful	60.0
Advisors need to talk to students more	60.0
Know the classes	40.0
More flexible hours	20.0

Note: Some respondents provided multiple responses.  
n=5

## COURSE EVALUATION

This section centers on the helpfulness of the CIT program classes.

**Table 13.**

*Please indicate how helpful the following classes have been in improving your employable skills?*

Statements	<i>n</i>	Not at all Helpful	Slightly Helpful	Fairly Helpful	Very Helpful	Have Not Taken
ACC 121	5	0.0	0.0	40.0	60.0	0
ART 147	8	0.0	37.5	12.5	50.0	3
BCA 134	2	0.0	0.0	0.0	100.0	9
BCA 142	2	0.0	0.0	50.0	50.0	9
BCA 155	1	0.0	0.0	100.0	0.0	10
BCA 184	1	0.0	0.0	100.0	0.0	10
BUS 102	7	14.3	0.0	28.6	57.1	9
BUS 121	2	50.0	0.0	50.0	0.0	9
BUS 130	2	50.0	0.0	0.0	50.0	9
BUS 154	5	20.0	0.0	20.0	60.0	11
CIS 127	20	15.0	15.0	35.0	35.0	17
CIS 134	24	0.0	8.3	25.0	66.7	4
CIS 139	22	0.0	18.2	22.7	59.1	4
CIS 144	11	0.0	0.0	27.3	72.7	14
CIS 151	10	0.0	0.0	20.0	80.0	11
CIS 158	8	12.5	12.5	50.0	25.0	13
CIS 171	14	0.0	28.6	21.4	50.0	12
CIS 175	7	0.0	0.0	28.6	71.4	18
CIS 187	10	10.0	20.0	10.0	60.0	11
CIS 207	27	7.4	3.7	29.6	59.3	12
CIS 213	18	0.0	16.7	38.9	44.4	5
CIS 215	11	0.0	9.1	45.5	45.5	11
CIS 227	9	0.0	11.1	22.2	66.7	13
CIS 332	54	7.4	16.7	31.5	44.4	4
CIS 780	20	0.0	5.0	40.0	55.5	27
CSC 110	6	0.0	0.0	66.7	33.3	4
CSC 114	50	10.0	18.0	34.0	38.0	13
CSC 121	48	0.0	8.3	22.9	68.8	9
ENG 105	22	9.1	4.5	40.9	45.5	4
ENG 106	15	0.0	6.7	46.7	46.7	11
GRA 104	4	0.0	0.0	50.0	50.0	7
GRA 121	10	0.0	0.0	20.0	80.0	1
GRA 137	11	0.0	0.0	18.2	81.8	0

Statements	<i>n</i>	Not at all Helpful	Slightly Helpful	Fairly Helpful	Very Helpful	Have Not Taken
GRA 140	2	0.0	0.0	50.0	50.0	9
GRA 141	2	0.0	0.0	50.0	50.0	9
GRA 148	1	0.0	0.0	100.0	0.0	10
GRA 165	1	0.0	0.0	0.0	100.0	10
GRA 173	7	0.0	14.3	0.0	85.7	4
GRA 908	1	0.0	0.0	0.0	100.0	10
GRA 949	5	0.0	40.0	0.0	60.0	6
JOU 110	7	14.3	14.3	57.1	14.3	4
MGT 195	32	3.1	15.6	34.4	46.9	26
MKT 110	7	28.6	0.0	28.6	42.9	4
MKT 140	1	0.0	0.0	0.0	100.0	10
MKT 150	7	28.6	0.0	28.9	42.9	4
MKT 154	1	0.0	0.0	100.0	0.0	10
MKT 184	1	0.0	0.0	100.0	0.0	10
MKT 198	1	0.0	0.0	100.0	0.0	10
MMS 113	1	0.0	0.0	100.0	0.0	10
NET 142	28	0.0	10.7	32.1	57.1	4
NET 217	25	0.0	8.0	24.0	68.0	1
NET 218	15	0.0	13.3	20.0	66.7	11
NET 219	14	0.0	7.1	28.6	64.3	12
NET 220	14	0.0	14.3	21.4	64.3	12
NET 313	29	0.0	0.0	27.6	72.4	2
NET 343	13	0.0	0.0	23.1	76.9	18
NET 418	20	0.0	10.0	10.0	80.0	6
NET 478	23	0.0	8.7	13.0	78.3	3
NET 495	13	0.0	0.0	15.4	84.6	13
NET 612	24	0.0	8.3	20.8	70.8	32
NET 785	26	8.0	24.0	24.0	44.0	6
NET 790	22	0.0	9.1	40.9	50.0	4
NET 795	6	0.0	0.0	16.7	83.3	20
NET 810	18	0.0	0.0	38.9	61.1	29
PHI 142	1	0.0	0.0	100.0	0.0	10
SPC 112	9	11.1	0.0	22.2	66.7	17
SPC 122	34	5.9	38.2	20.6	35.3	25

Note: Values reflect percentages.

**Table 14.**

*Please indicate the extent with which you agree or disagree with each of the following about your CIT instructors.*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total Agree
My instructors are friendly	74	1.4	0.0	1.4	44.6	52.7	97.3
My instructors are helpful	74	1.4	1.4	4.1	41.9	51.4	93.3
My instructors are knowledgeable about subject matter	74	1.4	0.0	4.1	41.9	52.7	94.6
My instructors are available to answer questions about class, homework, or assignments	74	1.4	0.0	5.4	44.6	48.6	93.2
My instructors are accessible	74	1.4	1.4	5.4	45.9	45.9	91.8
My instructors provide guidance as needed	74	2.7	0.0	5.4	41.9	50.0	91.9

*Note:* Values reflect percentages.



## PROGRAM AND FACILITIES EVALUATION

This section centers on the CIT program, the facilities associated with the program, and the software used in the program.

**Table 15.**

*Please indicate how satisfied you are with each of the following.*

Statements	<i>n</i>	Very Dissatisfied	Somewhat Dissatisfied	Neither Satisfied or Dissatisfied	Somewhat Satisfied	Very Satisfied	Did Not Use
CIT Program	70	0.0	1.4	4.3	25.7	68.6	4
Quality of CIT Instruction	68	0.0	1.5	5.9	26.5	66.2	6
Availability of CIT courses	68	0.0	8.8	4.4	35.3	51.5	6
CIT courses that are offered	68	0.0	2.9	7.3	26.5	63.2	6
F103 Comp. Eq.	58	1.7	3.4	15.5	12.1	67.2	16
F116-118 Comp. Eq.	55	1.8	3.6	10.9	27.3	56.4	19
F107 Comp. Eq.	59	1.7	1.7	11.9	13.6	71.2	15
Virtualized Servers	63	7.9	6.3	7.9	28.6	49.2	11
CCNA eq.	51	0.0	5.9	19.6	25.5	49.0	23
Lab Space	71	0.0	4.2	5.6	32.4	57.7	3
Size of classes	74	0.0	1.4	4.1	21.6	73.0	0
Opportunities to interact with other students	73	2.7	3.7	6.8	20.5	67.1	1
Availability of CIT faculty outside of classroom	67	1.5	3.0	11.9	26.9	56.7	7
F104 Comp. Eq.	47	2.1	2.1	12.8	17.0	66.0	27

*Note:* Values reflect percentages.

**Table 16.***Please indicate the extent with which you enjoyed learning the following software offered:*

Statements	<i>n</i>	Not Much	Little	Some- what	Much	A Great Deal	Have Not Used
Remote Access VPN	58	1.7	6.9	25.9	15.5	50.0	16
NetLab	55	0.0	16.4	21.8	21.8	40.0	19
Visual Studio	41	0.0	2.4	14.6	22.0	61.0	33
Adobe CS 6	34	8.8	5.9	17.6	17.6	50.0	40
Dreamweaver	30	13.3	0.0	26.7	16.7	43.3	44
MS Office	62	4.8	9.7	16.1	21.0	48.4	12
VMware	62	0.0	3.2	19.4	27.4	50.0	12
Linux	55	1.8	5.5	10.9	25.5	56.4	19
Javascript	33	6.1	0.0	27.3	24.2	42.4	41
MS SQL Server	52	0.0	7.7	21.2	26.9	44.2	22
PHP	29	3.4	13.8	17.2	31.0	34.5	45
MySQL	54	3.7	3.7	20.4	27.8	44.4	20
Aptana	18	16.7	0.0	38.9	16.7	27.8	56
Notepad++	44	4.5	0.0	18.2	22.7	54.5	30
Sharepoint	24	16.7	12.5	25.0	16.7	29.2	50
Wordpress	28	10.7	17.9	21.4	10.7	39.3	46
jQuery	17	11.8	17.6	29.4	5.9	35.3	57
Photoshop	26	19.2	3.8	23.1	15.4	38.5	48

*Note:* Values reflect percentages.

## ACTIVITIES

This section centers on activities available through the CIT program.

**Table 17.**

*Please indicate the extent with which you found the following activities valuable:*

Statements	<i>n</i>	Not Valuable	Limited Value	Average Value	Valuable	Very Valuable	Did Not Use	Did Not Know About
Career Mixer with AIM	29	0.0	3.4	17.2	41.4	37.9	29	16
CIT E-Newsletter	39	0.0	2.6	12.8	51.3	33.3	25	10
Code Kata	23	0.0	0.0	21.7	52.2	26.1	34	17
Cyber Defense Competition	37	2.7	5.4	5.4	32.4	54.1	27	10
Data Center Facility Tour (Yahoo!)	32	0.0	0.0	9.4	34.4	56.3	32	10
Informational Socials	32	0.0	0.0	12.5	40.6	46.9	32	10
Internship Opportunities	44	0.0	0.0	11.4	27.3	61.4	27	3
IT Career Fair	48	0.0	6.3	4.2	22.9	66.7	23	3
LinkedIn and Career Link Training Session	19	0.0	5.3	21.1	31.6	42.1	42	13
Mock Interviews	26	0.0	0.0	11.5	34.6	53.8	35	13
MyCIT Experience	33	0.0	0.0	12.1	42.4	45.5	31	10
Professional Photo Day	29	0.0	3.4	6.9	41.4	48.3	41	4
Resume Reviews	32	0.0	0.0	9.4	25.0	65.6	31	11
Speaker – Dr. Ali from UNO	14	7.1	0.0	14.3	35.7	42.9	51	9
Startup Grind	28	0.0	3.6	7.1	50.0	39.3	40	6
Succeed in IT – ROC webpage	38	0.0	2.6	15.8	36.8	44.7	29	7
IT Internship/Job Board	32	0.0	3.1	6.3	21.9	68.8	33	9
Career Fair Mixer	31	0.0	6.5	6.5	22.6	64.5	34	9

*Note:* Values reflect percentages.

## INTERNSHIPS

This section centers on the internships available to students with local employers.

**Table 18.**  
*How many internships were you able to secure over the past year?*

Internships	Percentage
0 internships	66.2
1 internship	24.3
2 internships	8.1
3 internships	1.4
More than 3 internships	0.0

*n*=74

**Table 19.**  
*Where you able to secure full time employment as a result of your internship?*

Employment	Percentage
Yes	4.1
Yes, but it was not due to any internship	6.8
No	89.2

*n*=74

**Table 20.**  
*What is the name of the company where you are/will be employed full time?*

Responses	Percentage
WRK Systems Inc.	25.0
Adecco/Google	12.5
Alorica	12.5
Five Nines Technology Group	12.5
IWCC IT Center	12.5
UI Partners	12.5
Varian Med Systems	12.5

*n*=8

## ENGAGEMENT

This section gauges students' involvement with Iowa Western Community College extra-curricular activities including campus clubs, organizations, events, and contests. This section also includes students' class attendance and opinion of academic resources.

**Table 21.**  
*Do you participate in any IWCC clubs or organizations?*

Response	Percentage
Yes	37.8
No	62.2

*n*=74

**Table 22.**  
*Do you participate in any IWCC events or contests?*

Response	Percentage
Yes	41.9
No	58.1

*n*=74

**Table 23.**  
***Which IWCC clubs or organizations do you participate in?***

Responses	Percentage
Nerd Squad	40.7
Anime Club	11.1
CIT Club	11.1
Phi Theta Kappa	11.1
Vets Club	11.1
IT Club	7.4
CDC	3.7
Club GSA	3.7
Craft Club	3.7
PTK	3.7
Sports	3.7

*Note:* Some respondents provided multiple responses.

*n*=27

**Table 24.**  
*Which IWCC events or contests have you participated in?*

Responses	Percentage
Cyber Defense Competition	44.8
Career Fairs	17.2
Code Kata	10.3
Mixers	10.3
AIM	6.9
Bake Sale	3.4
Casino Night	3.4
CIT points	3.4
Easter run in the café	3.4
Intramurals	3.4
Stress Free Week	3.4
Student Health 101	3.4
The hypnotist	3.4
Track and Field	3.4
Various events	3.4

*Note:* Some respondents provided multiple responses.  
*n*=29

**Table 25.**  
*In general, how would you rate your class attendance?*

Absences	Percentage
Excessive absences	4.1
Some absences	37.8
Rarely absent	43.2
Never miss class	14.9

*n*=74

**Table 26.*****In general, what is the main reason for not attending classes? (Select all that apply)***

Reasons for Not Attending Class	Percentage
Illness	54.1
Childcare issues	6.8
Transportation issues	21.6
Need to work/can't get time off	37.8
Other	25.7

*Note:* The percentages do not add up to 100%.*n*=74*Responses from the "Other" choice:*

*Other events (3)*  
*Appointments (2)*  
*Conference (2)*  
*Family (2)*  
*Funeral (2)*  
*Interview (2)*  
*Sleep (2)*  
*Construction (1)*  
*Travel for work (1)*

**Table 27.*****Please indicate the extent with which each of the following resources has helped you.***

Statements	<i>n</i>	Not at all Helpful	Slightly Helpful	Fairly Helpful	Very Helpful	Have Not Used
Tutoring	12	16.7	16.7	33.3	33.3	62
Financial Aid Services/Counseling	50	6.0	8.0	26.0	60.0	24
Academic Advising	54	1.9	9.3	31.5	57.4	20
Supplemental Instruction	18	11.1	11.1	22.2	55.6	56
Workshops	19	15.8	10.5	26.3	47.4	55
Other	11	38.5	15.4	7.7	23.1	63

*Note:* Values reflect percentages.*Responses from the "Other" choice:**None given*



**Table 28.**

*Do you have access to everything you need in order to learn?*

Responses	Percentage
Yes	95.9
No	4.1

*n*=52

**Table 29.**

*If no, what do you need?*

Response	Percentage
None Given	0.0

*n*=0

## VALUABLE LESSONS AND IMPROVEMENT

This section focuses on the value of students' learning experiences at Iowa Western Community College and the CIT program. Students further provided suggestions and comments on ways in which IWCC can improve both the CIT program and as a college overall.

**Table 30.**  
*To date, what has been the most valuable lesson that you have learned at IWCC?*

Responses	Percentage
Apply yourself/work ethic	15.6
Do not procrastinate	11.1
Organization	11.1
Confidence	8.9
Coding	6.7
Attend class	4.4
Communication	4.4
That I enjoy learning	4.4
Things will always find a way to fail	4.4
Be on time	2.2
Being a graphic designer is expensive	2.2
CDC	2.2
Everyone is here to help	2.2
Everything	2.2
Instructors are helpful	2.2
Lots of good resources to build on for business	2.2
Never show your power-level	2.2
Not working now will carry over	2.2
Teamwork	2.2
Trust no one	2.2
Vital skills	2.2

*Note:* Some respondents provided multiple responses.  
*n*=45

**Table 31.***To date, what has been the most valuable lesson that you have learned in the CIT program?*

Responses	Percentage
Linux	11.8
Learning to be successful	11.8
Networking	11.8
General programming	8.8
Adobe InDesign	5.9
Coding	5.9
How capable I am	5.9
Make time	5.9
Practice applying	5.9
Technology is ever changing	5.9
Art has no rules	2.9
Ask questions	2.9
C#	2.9
Difference between hub and switch	2.9
Lock computer always	2.9
More people to make team	2.9
Save all the time	2.9
Strong drive to succeed	2.9
Task management	2.9
Things will always find a way to fail	2.9

*Note:* Some respondents provided multiple responses.

*n*=43

**Table 32.**

*Thinking about all of your experiences with the various staff and processes at IWCC over time, what can we do to improve our services, interactions, information, etc.?*

Responses	Percentage
Grade to assignments	15.4
Allow staff to be more open with students	7.7
Answer questions appropriately	7.7
Communication	7.7
Have more morning hours	7.7
Improve connection to remote desktop services	7.7
Instructors need to communicate better	7.7
Instructors need to give more individual feedback	7.7
Instructors need to know material	7.7
John needs help	7.7
Make personal appearances in classroom	7.7
Make sure people have required books sooner	7.7
More classes available online	7.7
More effort on internship program	7.7
Send tuition probation/termination letters in mail	7.7

*Note:* Some respondents provided multiple responses.

*n*=13

**Table 33.*****Do you have any suggestions or comments for improving the CIT program?***

Responses	Percentage
More hands on projects	16.7
Increase user desktop memory	8.3
Instructor needs to have better communication skills	8.3
Instructors need better time management	8.3
More classes available each semester	8.3
More group projects	8.3
More in-depth GUI learning	8.3
More network admin help	8.3
More options for online classes	8.3
Need to know how to teach class	8.3
No programming tests on paper	8.3

*Note:* Some respondents provided multiple responses.  
*n*=12

**Table 34.*****Can IWCC staff contact you if needed?***

Response	Percentage
Yes	83.6
No	16.4

*n*=73

**Table 35.*****Do you anticipate additional IWCC CIT program credits within the next year?***

Response	Percentage
Yes	80.8
No	19.2

*n*=73

**Table 36.**  
***Why do you not anticipate additional IWCC CIT program credits within the next year?***

Reasons for Not Attending	Percentage
Degree/diploma/certificate completed	50.0
Transferring to another IWCC program	0.0
Transferring to a different institution/college	0.0
Graduated	28.6
Other	21.4

*Note:* The percentages do not add up to 100%.  
*n=14*

*Responses from the "Other" choice:*

*Moving (2)*

*Not attending (1)*



## **Appendix G:**

### **Student Survey Evaluation Report: Spring 2016**

## METHODOLOGY

This student survey, which comprises a portion of the overall student evaluation, was distributed to students who took ITC<sup>2</sup> Project designated classes in the Spring of 2016. Online surveys were distributed at the end of Spring 2016 semester to approximately 100 students via an electronic link.

Students were asked questions about the length of time they have been at IWCC, how much more time they expected to spend at IWCC and to estimate an expected date of graduation. Students were asked questions about the advising and registration process at IWCC. Specifically, students were asked whether they knew who their advisor was, how much time they spent with their advisor, and to share whether they thought their advisor was knowledgeable and helpful. Students were also asked to rate whether Computer Information Technology (CIT) classes taken were helpful in improving their employable skills and to rate their instructors and various aspects of the program (e.g., quality of CIT instruction, computer equipment, opportunities to interact with students and faculty).

Students were also asked about internships and activities they have participated in since enrolling at IWCC. In addition, students were asked about their engagement/activities outside the classroom (e.g., participation in any events or organizations), school attendance, and rate whether various resources provided by IWCC were helpful. Finally, students were asked to reflect on their time at IWCC and in the ITC<sup>2</sup> program. In particular, students were asked to describe lessons they had learned and whether they had any suggestions on how to improve the program. In the end, students were asked whether they anticipated taking any additional IWCC CIT program credits in the next year. Students that indicated they would not take additional program credit within the next year were asked about reasons for not attending.



## RESULTS

*Enrollment.* Students responding to the survey indicated that they were in a variety of CIT focus areas including Network and System Administration (34.0%), Application and Web Programming (15.0%), and Computer Science Programming (15.0%; see Table 1). Slightly more than half (58.1%) of the students reported that they had completed between two to four semesters at IWCC (see Table 2). When asked how many semesters they still expected to complete, 21.4% were done when the current semester ended, 38.8% indicated that they expected to complete one to two semesters, 14.3% expected to enroll for at least three more semesters, and 25.5% indicated that they expected to enroll four or more semesters more (see Table 3).

The majority (77.6%) of students indicated that they had attended IWCC continuously since starting at IWCC (see Table 4). Approximately one-third (32.1%) of students expected to graduate or complete their program by the end of 2016, 38.4% expected to graduate or complete by June 2017, and the remainder of the students indicated that they expected to graduate or complete by the end of 2020.

*Advising/Registration.* The majority (97.1%) of survey participants knew who their IWCC academic advisor was (see Table 6). These students predominantly agreed that their advisor was friendly (94.2%), helpful (87.2%), knowledgeable about program requirements (84.7%), available/accessible (89.6%), knowledgeable about requirements for transferring to another college (75.0%), and help students set goals (80.7%; see Table 7).

Slightly more than one-third (37.5%) of students indicated that they met with their advisor at least once a semester, 21.9% met with their advisor monthly, 4.2% met with their advisor once every other week and 8.4% met with their advisor one or more times per week. A few students (28.1%) reported that they had not met with an advisor (see Table 8). In general, when meeting with advisors, 42.7% reported that their meetings last between 0-15 minutes, 25.0% reported meetings between 16-30 minutes, and 3.1% reported that meetings last 31-45 minutes (see Table 9).

The majority (85.2%) of students thought that registering for class is easy, 78.9% thought the instructions for registering online were easy to understand, and 51.6% of students indicated that they preferred to have help when registering for their classes (see Table 10). When asked how the registration process could be improved, students indicated the navigation needs to be improved (25.8%), add list of required/recommended classes (19.4%), make it easier to read/use (12.9%), and more class times/sections (9.7%; see Table 11). When asked how the advising process could be improved, students indicated that advisors need to give more input on course selection (13.6%), have mandatory meetings (13.6%), and make sure the student is on track (13.6%; see Table 12).

*Evaluation of Courses.* Students were asked to rate how helpful each of the CIT required classes they have taken have been in improving their employable skills. With the exception of a few business, marketing, and management classes, the majority of students indicated that their CIT classes were helpful in improving skills needed for employment (see Table 13).

Overall, students found their instructors to be friendly (93.6%), helpful (93.6%), knowledgeable (92.5%), available to answer students' questions (90.5%), accessible (91.5%), and provided guidance as needed (90.4%; see Table 14).

*Program and Facilities Evaluation.* The majority of students also indicated that they were satisfied with the CIT program overall (84.1%), quality of CIT instruction (84.1%), CIT courses offered (76.2%), and availability of CIT courses (75.9%), classroom size (86.3%), and lab space (82.3%; see Table 15). In general, students also reported that they enjoyed learning about various software programs used in CIT courses (see Table 16).

*Activities.* Overall, students reported that they considered the various activities (e.g., career mixer with AIM, Cosentry data center facility tour, internship opportunities) offered through the CIT program valuable (see Table 17).

*Internships.* Approximately one-fourth (22.8%) of the students reported that they were able to secure at least one internship in the past year and 7.6% reported at least two internships (see Table 18). Of these students, 14.3% thought that the internship resulted in full time employment (see Table 19). Companies where students were to be employed at full time include WRK Systems/Solutions (33.3%), First Data (16.7%), and Pottawattamie County (16.7%; see Table 20).

*Engagement.* Students were also asked whether they participated in any IWCC extracurricular activities. Approximately one-fifth (18.5%) of the students reported that they participated in IWCC clubs or organizations (see Table 21). Approximately one-fifth (18.5%) of the students indicated that they had participated in IWCC events or contests (see Table 22). The clubs or organizations students participated in include Phi Theta Kappa (37.5%), Nerd Squad (31.3%), CIT Club (18.8%), and Vets Club (18.8%; see Table 23). The events or contests students participated in include Cyber Defense Competition (80.0%), Casino Night (13.3%), and Career Fair (6.7%; see Table 24).

When asked to rate their class attendance, approximately three-fourths (71.7%) of students reported that they rarely or never missed class, 25.0% reported some absences, and 3.3% reported excessive absences (see Table 25). Reasons for not attending classes such as illness (44.6%), unable to or couldn't get time off (20.7%), problems with transportation (18.5%), and childcare issues (6.5%) were given (see Table 26).

Overall, students reported that the following IWCC resources were helpful: financial aid services/counseling (82.8%), academic advising (89.8%), supplemental instruction (83.3%), tutoring (80.0%), and workshops (78.9%; see Table 27).

The majority (91.3%) of students reported that they have access to everything they needed in order to learn (see Table 28). For the students that reported that they did not have access to everything they needed in order to learn, they indicated they needed another laptop (25.0%), the school computers are having issues (25.0%), SQL Server is not working properly (25.0%), and need tutor for specialty (25.0%; see Table 29).

*Valuable Lessons and Improvement.* Finally, when asked to list the most valuable lessons they have learned at IWCC, a few students reported that they learned to do their homework (10.9%), programming (10.9%), need to reach out for help (10.9%), and time management (10.9%; see Table 30). When asked to list the most valuable lessons they have learned in the CIT program, a few students reported learning different languages/software (29.4%), the need to talk to people (11.8%), and the need to stay current in information technology (7.8%; see Table 31).

Some students suggested the following as ways services, interactions, and information could be improved: fixing the problems with the software/servers (16.0%), easier access to required classes (12.0%), and instructors answering email in a timely manner (12.0%; see Table 32). Some students indicated that more CIT summer courses (8.7%), more in class demos (8.7%), and more night classes (8.7%) would improve the CIT program (see Table 33).

Over three-fourths (78.0%) of the students indicated the IWCC staff could contact them. The majority (69.2%) of students expected to obtain IWCC CIT program credits within the next year (see Table 35). The remaining students are not going to continue because they have completed their program of study (64.3%) or are transferring to a different institution/college (25.0%; see Table 36).

The following tables present the descriptive statistics for each of the questions asked in the spring student survey.

## ENROLLMENT

This section centers around enrollment, including current students enrolled at Iowa Western Community College, students who are currently employed, and students' specific CIT focus areas.

**Table 1.**  
***What is your CIT Focus Area?***

CIT Focus	Percentage
Computer Science e-Commerce (Assoc. of Arts)	1.0
Computer Science Programming (Assoc. of Arts)	15.0
Computer Science Systems (Assoc. of Arts)	8.0
Computer Science Web Development (Assoc. of Arts)	2.0
Cyber Security	4.0
Management Information Systems (Assoc. of Arts)	6.0
Application and Web Programming (Assoc. of Applied Science)	15.0
Network and System Administration (Assoc. of Applied Science)	34.0
Graphic Communications (Assoc. of Applied Science)	2.0
Graphic Communications (Diploma)	0.0
Desktop Support Certificate (Certificate)	0.0
Programming Certificate (Certificate)	2.0
System Administration Certificate (Certificate)	4.0
Other	7.0

*n*=100

**Table 2.***Including this current semester, how many semesters have you completed at IWCC?*

Semesters	Percentage
0 semesters	2.0
1 semester	15.3
2 semesters	29.6
3 semesters	12.2
4 semesters	16.3
5 semesters	7.1
6 semesters	10.2
7 semesters	1.0
8 semesters	1.0
9 semesters	0.0
10 or more semesters	5.1

*n*=98**Table 3.***Not including this current semester, how many more semesters do you expect to complete?*

Semesters	Percentage
0 semesters	21.4
1 semester	15.3
2 semesters	23.5
3 semesters	14.3
4 semesters	14.3
5 semesters	3.1
6 semesters	2.0
7 semesters	0.0
8 semesters	3.1
9 semesters	0.0
10 or more semesters	3.1

*n*=98

**Table 4.***Have you attended IWCC continuously since you first started?*

Response	Percentage
Yes	77.6
No	12.2
This is my first semester	10.2

*n*=98**Table 5.***What is your anticipated graduation/program completion date?*

Response	Percentage
4/2016	1.0
05/2016	17.7
7/2016	3.1
8/2016	1.0
9/2016	1.0
12/2016	8.3
1/2017	1.0
4/2017	1.0
05/2017	35.4
6/2017	1.0
7/2017	1.0
8/2017	1.0
11/2017	1.0
12/2017	13.5
3/2018	1.0
5/2018	6.3
10/2018	1.0
5/2019	1.0
5/2020	3.1

*n*=96

## ADVISING/REGISTRATION

This section describes students' opinions of Iowa Western Community College advising staff and registration process. Further, this section includes students' opinions and satisfaction with CIT software, CIT classes, and CIT instructors.

**Table 6.**  
*Who is your CIT advisor? (Select one)*

Advisors	Percentage
William Barrett	13.5
Melanie Butterbaugh	11.5
John Magill	13.5
Carolyn Storm	2.1
Jared Bernard	10.4
Christie Keller	15.6
Connie Jones	17.7
Not Listed	7.3
I don't know who my advisor is	8.3

*n*=96

**Table 7.**

*Please indicate the extent with which you agree or disagree with each of the following statements about your advisor.*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Not Applicable
My advisor is friendly	86	2.3	0.0	3.5	27.9	66.3	10
My advisor is helpful	86	2.3	2.3	8.1	27.9	59.3	10
My advisor is knowledgeable about program requirements	85	1.2	0.0	14.1	24.7	60.0	11
My advisor is knowledgeable about requirements for transferring to another college	72	1.4	2.8	20.8	27.8	47.2	24
My advisor is available/accessible	86	1.2	1.2	8.1	25.6	64.0	10
My advisor helped me set goals	83	1.2	3.6	14.5	27.7	53.0	13

*Note:* Values reflect percentages.

**Table 8.**

*How often do you meet with your advisor? (Select one)*

Meet Times	Percentage
Once per semester	37.5
Monthly	21.9
Once every other week	4.2
Once per week	4.2
More than once per week	4.2
I have not met with an advisor	28.1

*n*=96



**Table 9.*****On average, meetings with the advisor lasts approximately: (Select one)***

Time Periods	Percentage
0-15 minutes	42.7
16-30 minutes	25.0
31-45 minutes	3.1
46-60 minutes	2.1
Over an hour	0.0
I have not met with an advisor	27.1

*n*=96**Table 10.*****Please indicate the extent with which you agree or disagree with each of the following statements:***

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total Agree
Registering for classes is easy	95	0.0	3.2	11.6	50.5	34.7	85.2
Instructions for registering online are easy to understand	95	0.0	4.2	6.8	52.6	26.3	78.9
I prefer to have help when registering for classes	95	9.5	15.8	23.2	29.5	22.1	51.6

*Note:* Values reflect percentages.

**Table 11.**  
*How can the registration process be improved?*

Responses	Percentage
Navigation needs to be improved	25.8
Add list of required/recommended classes	19.4
Make easier to read/use	12.9
More class times/sections	9.7
Have advisor assist you	6.5
Off all classes each semester	6.5
Remind students of deadlines	6.5
Add a weekly calendar for planning	3.2
Click on class to register	3.2
Less menus in roc	3.2
Some steps are redundant	3.2
Update course info	3.2

*Note:* Some respondents provided multiple responses.  
*n*=31

**Table 12.**  
*How can the advising process be improved?*

Responses	Percentage
Give more input on course selection	13.6
Have mandatory meetings	13.6
Make sure student is on track	13.6
Have advisors, not teachers, advising	9.1
Have teachers advise	9.1
Inform students of advising changes	9.1
More access to classes	9.1
Have friendlier staff	4.5
Make sure the advisor is helping the student	4.5
More contact with the student	4.5
Online video advising	4.5
Uncomfortable with advisor	4.5

*Note:* Some respondents provided multiple responses.  
*n*=22

## COURSE EVALUATION

This section centers on the helpfulness of the CIT program classes.

**Table 13.**

*Please indicate how helpful the following classes have been in improving your employable skills?*

Statements	<i>n</i>	Not at all Helpful	Slightly Helpful	Fairly Helpful	Very Helpful	Have Not Taken
ACC 121	7	14.3	14.3	57.1	14.3	5
ART 147	3	0.0	33.3	33.3	33.3	5
BCA 155	2	0.0	0.0	50.0	50.0	5
BUS 102	5	0.0	20.0	40.0	40.0	7
BUS 130	1	0.0	0.0	100.0	0.0	5
BUS 154	5	0.0	0.0	100.0	0.0	9
CIS 121	1	0.0	0.0	100.0	0.0	8
CIS 127	29	20.7	13.8	34.5	31.0	24
CIS 134	19	0.0	5.3	31.6	63.2	12
CIS 139	22	0.0	4.5	22.7	72.7	15
CIS 144	13	0.0	0.0	30.8	69.2	22
CIS 151	9	0.0	0.0	22.2	77.8	12
CIS 158	6	16.7	16.7	16.7	50.0	15
CIS 171	19	5.3	10.5	21.1	63.2	21
CIS 175	13	0.0	0.0	46.2	53.8	25
CIS 187	9	0.0	11.1	33.3	55.6	12
CIS 207	23	0.0	13.0	17.4	69.6	10
CIS 213	14	0.0	7.1	28.6	64.3	10
CIS 215	7	0.0	0.0	28.6	71.4	15
CIS 227	7	0.0	0.0	28.6	71.4	16
CIS 332	57	1.8	8.8	40.4	49.1	22
CIS 780	16	0.0	6.3	43.8	50.0	35
CRJ 100	1	0.0	0.0	100.0	0.0	8
CSC 110	12	25.0	16.7	33.3	25.0	19
CSC 114	64	6.3	18.8	28.1	46.9	26
CSC 121	57	1.8	7.0	28.1	63.2	22
ENG 105	31	12.9	29.0	35.5	22.6	11
ENG 106	22	13.6	31.8	31.8	22.7	17
GRA 104	3	0.0	0.0	33.3	66.7	5
GRA 121	3	0.0	0.0	66.7	33.3	5
GRA 137	3	0.0	0.0	33.3	66.7	5
GRA 140	3	0.0	0.0	33.3	66.7	5
GRA 141	1	0.0	0.0	100.0	0.0	7

Statements	<i>n</i>	Not at all Helpful	Slightly Helpful	Fairly Helpful	Very Helpful	Have Not Taken
GRA 148	1	0.0	0.0	100.0	0.0	7
GRA 173	3	0.0	33.3	33.3	33.3	5
GRA 908	3	0.0	0.0	66.7	33.3	5
GRA 949	3	0.0	0.0	33.3	66.7	5
MGT 101	1	0.0	0.0	100.0	0.0	5
MGT 195	28	3.6	28.6	28.6	39.3	26
MKT 110	3	0.0	0.0	100.0	0.0	5
MKT 150	3	0.0	0.0	100.0	0.0	5
NET 142	29	3.4	6.9	51.7	37.9	11
NET 213	27	0.0	7.4	22.2	70.4	14
NET 225	11	0.0	9.1	18.2	72.7	26
NET 226	10	0.0	10.0	20.0	70.0	27
NET 227	9	0.0	0.0	22.2	77.8	26
NET 313	35	2.9	5.7	20.0	71.4	14
NET 343	12	0.0	8.3	16.7	75.0	33
NET 418	30	0.0	6.7	30.0	63.3	14
NET 478	27	0.0	7.4	33.3	59.3	14
NET 495	10	0.0	0.0	20.0	80.0	27
NET 612	21	0.0	4.8	33.3	61.9	56
NET 785	33	6.1	30.3	30.3	33.3	16
NET 790	34	0.0	17.6	32.4	50.0	7
NET 795	24	4.2	12.5	41.7	41.7	17
NET 810	15	6.7	0.0	20.0	73.3	37
SPC 112	20	5.0	15.0	25.0	55.5	16
SPC 122	37	16.2	16.2	27.0	40.5	18

*Note:* Values reflect percentages.

**Table 14.**

*Please indicate the extent with which you agree or disagree with each of the following about your CIT instructors:*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total Agree
My instructors are friendly	94	0.0	2.1	4.3	45.7	47.9	93.6
My instructors are helpful	94	0.0	2.1	4.3	51.1	42.6	93.6
My instructors are knowledgeable about subject matter	94	0.0	1.1	6.4	48.9	43.6	92.5
My instructors are available to answer questions about class, homework, or assignments	94	0.0	2.1	7.4	47.9	42.6	90.5
My instructors are accessible	94	1.1	2.1	5.3	48.9	42.6	91.5
My instructors provide guidance as needed	94	0.0	4.3	5.3	52.1	38.3	90.4

*Note:* Values reflect percentages.

## PROGRAM AND FACILITIES EVALUATION

This section centers on the CIT program, the facilities associated with the program, and the software used in the program.

**Table 15.**

*Please indicate how satisfied you are with each of the following:*

Statements	<i>n</i>	Very Dissatisfied	Somewhat Dissatisfied	Neither Satisfied or Dissatisfied	Somewhat Satisfied	Very Satisfied	Did Not Use
CIT Program	82	0.0	4.9	11.0	28.0	56.1	10
Quality of CIT Instruction	82	1.2	6.1	8.5	28.0	56.1	10
Availability of CIT courses	83	2.4	12.0	9.6	31.3	44.6	9
CIT courses that are offered	84	0.0	9.5	14.3	29.8	46.4	8
F103 Comp. Eq.	60	1.7	8.3	20.0	18.3	51.7	32
F107 Comp. Eq.	63	1.6	3.2	14.3	22.2	58.7	29
F116-118 Comp. Eq.	61	1.6	4.9	18.0	27.9	47.5	31
Virtualized Servers	78	1.3	11.5	14.1	26.9	46.2	14
CCNA eq.	49	0.0	4.1	32.7	10.2	53.1	43
Lab Space	68	0.0	4.4	13.2	23.5	58.8	24
Size of classes	80	1.3	0.0	12.5	15.0	71.3	12
Opportunities to interact with other students	77	1.3	1.3	15.6	22.1	59.7	15
Availability of CIT faculty outside of classroom	74	0.0	1.4	12.2	27.0	59.5	18
F104 Comp. Eq.	51	2.0	3.9	25.5	23.5	45.1	41

*Note:* Values reflect percentages.

**Table 16.***Please indicate the extent with which you enjoyed learning the following software offered:*

Statements	<i>n</i>	Not Much	Little	Somewhat	Much	A Great Deal	Have Not Used
Remote Access VPN	60	8.3	6.7	18.3	30.0	36.7	32
NetLab	76	10.5	9.2	30.3	19.7	30.3	16
Visual Studio	43	7.0	9.3	20.9	23.3	39.5	49
Adobe Creative Cloud	39	17.9	10.3	23.1	23.1	25.6	53
Dreamweaver	38	18.4	5.3	31.6	13.2	31.6	54
MS Office	80	3.8	5.0	15.0	27.5	48.8	12
VMware	74	2.7	1.4	21.6	28.4	45.9	18
Linux	62	3.2	0.0	12.9	25.8	58.1	30
Javascript	40	15.0	5.0	17.5	32.5	30.0	52
MS SQL Server	50	14.0	4.0	12.0	28.0	42.0	42
PHP	27	22.2	0.0	29.6	11.1	37.0	65
MySQL	62	9.7	4.8	16.1	24.2	45.2	30
Aptana	22	22.7	4.5	50.0	4.5	18.2	70
Notepad++	51	11.8	0.0	9.8	25.5	52.9	41
Sharepoint	20	30.0	0.0	35.0	5.0	30.0	72
Wordpress	21	28.6	0.0	23.8	14.3	33.3	71
jQuery	25	24.0	4.0	40.0	12.0	20.0	67
Photoshop	26	23.1	3.8	23.1	11.5	38.5	66

*Note:* Values reflect percentages.



## ACTIVITIES

This section centers on activities available through the CIT program.

**Table 17.**

*Please indicate the extent with which you found the following activities valuable:*

Statements	<i>n</i>	Not Valuable	Limited Value	Average Value	Valuable	Very Valuable	Did Not Use	Did Not Know About
Career Mixer with AIM	18	11.1	11.1	11.1	27.8	38.9	26	48
CIT E-Newsletter	36	5.6	8.3	25.0	38.9	22.2	29	27
Code Kata	11	18.2	9.1	9.1	27.3	36.4	31	50
Cyber Defense Competition	45	2.2	4.4	22.2	24.4	46.7	27	20
Data Center Facility Tour (Cosentry)	32	0.0	3.1	25.0	31.3	40.6	29	31
Informational Socials	23	0.0	13.0	13.0	21.7	52.2	31	38
Internship Opportunities	46	0.0	8.7	6.5	23.9	60.9	30	16
IT Career Fair	52	1.9	7.7	11.5	38.5	40.4	30	10
LinkedIn and Career Link Training Session	33	6.1	18.2	12.1	33.3	30.3	33	26
Mock Interviews	28	3.6	10.7	10.7	21.4	53.6	40	24
MyCIT Experience	28	7.1	10.7	14.3	35.7	32.1	37	27
Professional Photo Day	41	2.4	4.9	7.3	14.6	70.7	31	20
Resume Reviews	35	2.9	2.9	5.7	25.7	62.9	33	24
Speaker – Dr. Ali from UNO	14	7.1	0.0	21.4	28.6	42.9	42	36
Startup Grind	28	7.1	17.9	17.9	21.4	35.7	34	30
Succeed in IT – ROC webpage	41	4.9	7.3	12.2	29.3	46.3	31	20
IT Internship/Job Board	41	2.4	7.3	12.2	19.5	58.5	28	23
Career Fair Mixer	29	3.4	13.8	20.7	27.6	34.5	34	29

*Note:* Values reflect percentages.

## INTERNSHIPS

This section centers on the internships available to students with local employers.

**Table 18.**  
*How many internships were you able to secure over the past year?*

Internships	Percentage
0 internships	69.6
1 internship	22.8
2 internships	7.6
3 internships	0.0
More than 3 internships	0.0

*n*=92

**Table 19.**  
*Where you able to secure full time employment as a result of your internship?*

Employment	Percentage
Yes	14.3
Yes, but it was not due to any internship	7.1
No	78.6

*n*=28

**Table 20.**  
*What is the name of the company where you are/will be employed full time?*

Responses	Percentage
WRK Systems/Solutions	33.3
First Data	16.7
Home Depot	16.7
Michelsen Organization	16.7
Pottawattamie County	16.7

*n*=6

## ENGAGEMENT

This section gauges students' involvement with Iowa Western Community College extra-curricular activities including campus clubs, organizations, events, and contests. This section also includes students' class attendance and opinion of academic resources.

**Table 21.**  
*Do you participate in any IWCC clubs or organizations?*

Response	Percentage
Yes	18.5
No	81.5

*n*=92

**Table 22.**  
*Do you participate in any IWCC events or contests?*

Response	Percentage
Yes	18.5
No	81.5

*n*=92

**Table 23.**  
*Which IWCC clubs or organizations do you participate in?*

Responses	Percentage
Phi Theta Kappa	37.5
Nerd Squad	31.3
CIT Club	18.8
Vets Club	18.8
Anime Club	6.3
Board Game Society	6.3
Craft Club	6.3
Cyber Defense Competition	6.3
Rho Alpha	6.3
Trio	6.3

*Note:* Some respondents provided multiple responses.

*n*=16

**Table 24.**  
*Which IWCC events or contests have you participated in?*

Responses	Percentage
Cyber Defense Competition	80.0
Casino Night	13.3
Career Fair	6.7
HackISU	6.7
NCL	6.7
Speech Contest	6.7

*Note:* Some respondents provided multiple responses.  
*n*=15

**Table 25.**  
*In general, how would you rate your class attendance?*

Absences	Percentage
Excessive absences	3.3
Some absences	25.0
Rarely absent	40.2
Never miss class	31.5

*n*=92

**Table 26.*****In general, what is the main reason for not attending classes? (Select all that apply)***

Reasons for Not Attending Class	Percentage
Illness	44.6
Childcare issues	6.5
Transportation issues	18.5
Need to work/can't get time off	20.7
Other	31.5

Note: The percentages do not add up to 100%.

*n*=92

Responses from the "Other" choice:

Construction (2)

Medical (2)

Overslept (2)

Class conflicts (1)

No motivation (1)

Travel (1)

**Table 27.*****Please indicate the extent with which each of the following resources has helped you:***

Statements	<i>n</i>	Not at all Helpful	Slightly Helpful	Fairly Helpful	Very Helpful	Have Not Used
Tutoring	20	10.0	10.0	20.0	60.0	72
Financial Aid Services/Counseling	64	6.3	10.9	10.9	71.9	28
Academic Advising	59	6.8	3.4	27.1	62.7	33
Supplemental Instruction	24	8.3	8.3	25.0	58.3	68
Workshops	19	10.5	10.5	26.3	52.6	73
Other	8	25.0	0.0	12.5	62.5	84

Note: Values reflect percentages.

Responses from the "Other" choice:

Found my own tutor (2)

ROC (1)

**Table 28.*****Do you have access to everything you need in order to learn?***

Responses	Percentage
Yes	91.3
No	8.7

*n*=92

**Table 29.*****If no, what do you need?***

Responses	Percentage
Another laptop	25.0
School computers having issues	25.0
SQL server not working properly	25.0
Tutor for specialty	25.0

*n*=4

## VALUABLE LESSONS AND IMPROVEMENT

This section focuses on the value of students' learning experiences at Iowa Western Community College and the CIT program. Students further provided suggestions and comments on ways in which IWCC can improve both the CIT program and as a college overall.

**Table 30.**

*To date, what has been the most valuable lesson that you have learned at IWCC?*

Responses	Percentage
Do homework	10.9
Learned programming	10.9
Reaching out for help	10.9
Time management	10.9
Attend class	5.5
Believe in yourself	5.5
Be friendly/yourself	3.6
Be self sufficient	3.6
Communication is key	3.6
Doing hands on work	3.6
Google is my friend	3.6
Internship experiences	3.6
Work hard	3.6
College is important	1.8
Everyone is different	1.8
Improvement of skills	1.8
Instructors make mistakes	1.8
Lost interest if not challenged	1.8
Patience is important	1.8
Properly citing in reports	1.8
Socialize higher education	1.8
Take classes in order	1.8
Teamwork	1.8
Technology is touchy	1.8

*n*=55

**Table 31.***To date, what has been the most valuable lesson that you have learned in the CIT program?*

Responses	Percentage
Different languages/software	29.4
Talk to people/teamwork	11.8
Everything	7.8
I'm more capable than I think I am	7.8
Stay current in IT	7.8
Coding issues	3.9
Internships are useful	3.9
New skills	3.9
Building websites	2.0
Buy a book and learn it myself	2.0
Classes not available each semester	2.0
Commitment	2.0
Do it yourself	2.0
Documentation	2.0
Enjoyed accelerated learning pace	2.0
Google is my friend	2.0
I do not like computer science	2.0
Not much so far	2.0
Professionalism	2.0
Take one step at a time	2.0

*n*=51



**Table 32.**

*Thinking about all of your experiences with the various staff and processes at IWCC over time, what can we do to improve our services, interactions, information, etc.?*

Responses	Percentage
Problems with software/servers	16.0
Easier access to required classes	12.0
Instructors need to answer emails	12.0
Better mixture of class components	4.0
Communication	4.0
Do not drop a student due to lack of resources	4.0
Instructors not accepting assignments	4.0
Make more video lectures available online	4.0
More cashiers in store	4.0
More interactive class time	4.0
More organized registration	4.0
More people at help desk	4.0
More security at housing	4.0
More unified front on teaching styles	4.0
Need friendlier atmosphere	4.0
Professors have done an excellent job	4.0
Provide examples in online courses	4.0
Reduce required forum posts	4.0
Teach program in my area	4.0
Teachers updating book, but not course materials	4.0

*Note:* Some respondents provided multiple responses.  
*n*=25

**Table 33.*****Do you have any suggestions or comments for improving the CIT program?***

Responses	Percentage
Add more CIT summer courses	8.7
More in class demos	8.7
Offer night classes	8.7
Another teacher for JAVA	4.3
Better response time	4.3
Building more networks with real hardware	4.3
Easier access to utilities for online students	4.3
Encourage more teamwork	4.3
Instructors not accepting assignments	4.3
Listen to John Magill	4.3
Market CIT more aggressively	4.3
Minimize instructors attending conferences	4.3
More funding	4.3
More use of Linux	4.3
Netlab too inaccessible	4.3
Offer more classes	4.3
Offer more classes online	4.3
Professors know what they are doing	4.3
Put Connie Jones in charge of lesson plans	4.3
Spread out classes better	4.3
Stop using “Google it” for instruction	4.3
Train instructors on how to be educators	4.3

*Note:* Some respondents provided multiple responses.  
*n*=23

**Table 34:**  
*Can IWCC staff contact you if needed?*

Response	Percentage
Yes	78.0
No	22.0

*n*=91

**Table 35:**  
*Do you anticipate additional IWCC CIT program credits within the next year?*

Response	Percentage
Yes	69.2
No	30.8

*n*=91

**Table 36.**  
*Why do you not anticipate additional IWCC CIT program credits within the next year?*

Reasons for Not Attending	Percentage
Degree/diploma/certificate completed	42.9
Transferring to another IWCC program	3.6
Transferring to a different institution/college	25.0
Graduated	21.4
Other	7.1

*Note:* The percentages do not add up to 100%.

*n*=14

*Responses from the "Other" choice:*

*General Education Credits Only (2)*



## **Appendix H:**

### **Student Survey Evaluation Report: Spring 2017**

## METHODOLOGY

This student survey, which comprises a portion of the overall student evaluation, was distributed to students who took ITC<sup>2</sup> Project designated classes in the Spring of 2017. Online surveys were distributed at the end of Spring 2017 semester to approximately 55 students via an electronic link.

Students were asked questions about the length of time they have been at IWCC, how much more time they expected to spend at IWCC and to estimate an expected date of graduation. Students were asked if they were Trade Adjustment Assistance (TAA) eligible and part of Workforce Investment Act (WIA). Students were asked questions about the advising and registration process at IWCC. Specifically, students were asked whether they knew who their advisor was, how much time they spent with their advisor, and to share whether they thought their advisor was knowledgeable and helpful. Students were also asked to rate whether Computer Information Technology (CIT) classes taken were helpful in improving their employable skills and to rate their instructors and various aspects of the program (e.g., quality of CIT instruction, computer equipment, opportunities to interact with students and faculty).

Students were also asked about their employment including if they are employed, if they are employed in an IT position, the name of their employer and when they started working for that employer. Students were also asked about internships and activities they have participated in since enrolling at IWCC. In addition, students were asked about their engagement/activities outside the classroom (e.g., participation in any events or organizations), school attendance, and rate whether various resources provided by IWCC were helpful. Finally, students were asked to reflect on their time at IWCC and in the ITC<sup>2</sup> program. In particular, students were asked to describe lessons they had learned and whether they had any suggestions on how to improve the program. In the end, students were asked whether they anticipated taking any additional IWCC CIT program credits in the next year. Students that indicated they would not take additional program credits within the next year were asked about reasons for not attending.

## RESULTS

*Enrollment/Goals.* Students responding to the survey indicated that they were in a variety of CIT focus areas including Network and System Administration (37.5%), Application & Web Programming (17.9%), Computer Science – Programming Concentration (12.5%), Management Information Systems (8.9%), and Computer Science – Web Development Concentration (5.4%; see Table 1).

Slightly more than half (53.6%) of the students reported that they had completed between two to four semesters at IWCC (see Table 2). When asked how many semesters they still expected to complete, 16.1% were done when the current semester ended, 42.8% indicated that they expected to complete one to two semesters, 12.5% expected to enroll for at least three more semesters, and 28.6% indicated that they expected to enroll in four or more semesters (see Table 3). The majority (73.2%) of students indicated that they had attended IWCC continuously since starting at IWCC (see Table 4). Approximately one-third (37.6%) of the students expected to graduate or complete their program by the end of 2017, 37.6% expected to graduate or complete their program by the end of 2018, and the remainder of the students indicated that they expected to graduate or complete by May 2029 (see Table 5).

More than half (62.5%) of the students indicated that they are not eligible for TAA benefits, while 33.9% were not sure if they were eligible for TAA benefits (see Table 6). More than half (62.5%) of the students indicated that they are not a part of the WIA program, while 35.7% were not sure if they were a part of the WIA program (see Table 7).

*Advising/Registration.* The majority (87.3%) of survey participants knew who their IWCC academic advisor was (see Table 8). These students predominantly agreed that their advisor was friendly (82.0%), helpful (80.0%), knowledgeable about program requirements (79.6%), knowledgeable about requirements for transferring to another college (69.3%), available/accessible (76.5%), and help students set goals (65.3%; see Table 9).

Almost half (43.6%) of the students indicated that they met with their advisor at least once a semester, 14.5% met with their advisor monthly, and 5.5% met with their advisor weekly (see Table 10). In general, when meeting with advisors, 25.5% reported that their meetings last between 1-15 minutes, 34.5% reported meetings last between 16-30 minutes, and 3.6% reported meetings last between 31-45 minutes (see Table 11).

The majority (81.8%) of students thought that registering for class is easy, 78.2% thought the instructions for registering online are easy to understand, and 43.7% of students indicated that they preferred to have help when registering for their classes (see Table 12). Students were asked how the registration process could be improved. Responses include: system is unintuitive (33.3%), simplify (9.5%), and have a tutorial on the web page (4.8%; see Table 13). Students were also asked how the advising process could be improved. Responses include: create a form/app that allows the students to set up a meeting (27.3%), advisors could be more friendly (9.1%), and advisors could be more helpful (9.1%; see Table 14).

Course Evaluation. Students were asked to rate how helpful each of the CIT required classes they have taken have been in improving their employable skills. With the exception of a few business, marketing, and management classes, the majority of students indicated that their CIT classes were helpful in improving skills needed for employment (see Table 15).

Overall, students found their instructors to be friendly (94.6%), helpful (92.7%), knowledgeable (98.1%), available to answer students' questions (96.3%), accessible (92.7%), and provided guidance as needed (94.6%; see Table 16).

The majority of the students also indicated that they are satisfied with the size of the classes (100.0%), lab space (94.3%), F107 computer equipment (91.1%), CIT Program (90.2%), F104 computer equipment (89.7%), availability of CIT faculty outside of the classroom (89.2%), quality of CIT instruction (88.5%), and CIT courses that are offered (88.5%; see Table 17). In general, students also reported that they enjoyed learning about various software programs used in CIT courses (see Table 18).

Activities. Overall, students reported that they considered the various activities (e.g., resume review, internship opportunities, IT career fair, and mock interviews) offered through the CIT program valuable (see Table 19).

Employment. Over half (65.5%) of the students are currently employed (see Table 20). Almost half (47.2%) are employed in an IT position (see Table 21). Half (50.0%) are employed full time and 50.0% are employed part time (see Table 22). Students are employed with a variety of companies including: IWCC (12.9%), Best Buy Geek Squad (9.7%), Proxibid (9.7%), Atlantic Bottling Co. (6.5%), and Godfather's Pizza (6.5%; see Table 23). The students indicated their employment started at a variety of times (see Table 24).

Over one-third (44.4%) of the students indicated they plan to work full time after graduation just at a different company than where they currently work and 44.4% indicated they do not know if they are going to work full time after graduation (see Table 25).

Students were asked how they hoped the CIT program would help them with their career goals. Almost all (88.2%) of the students indicated that they want to strengthen their IT skills, 29.4% indicated their degree will allow them to get a better job with a different employer, 23.5% indicated that they needed it in order to get a wage increase, and 23.5% indicated that they needed it to get promoted at their current job (see Table 26). Students were also asked why they chose CIT as a degree program. The majority (68.4%) indicated it was because they were interested in IT, 52.6% indicated it was because they wanted to work in the IT field, and 36.8% indicated it was because the degree will allow them to get a better job with a different employer (see Table 27).

Internships. Approximately one-fifth (18.2%) of the students reported that they were able to secure one internship in the past year, 7.3% reported two internships, and 1.8% reported three internships (see Table 28). Of these students, 20.0% thought that the internship resulted in full time employment (see Table 29). Of these students, 66.7% are employed full time at Layton

Flower Technologies and 33.3% are employed full time at All Makes Office Equipment (see Table 30).

*Engagement.* Students were also asked whether they participated in any IWCC extracurricular activities. Over one-tenth (14.5%) of the students reported that they participated in IWCC clubs or organizations (see Table 31). Approximately one-third (30.9%) of the students indicated that they had participated in IWCC events or contests (see Table 32). Clubs or organizations students participated in include: Tech Club (71.4%), Phi Theta Kappa (14.3%), and RA (14.3%; see Table 33). Events or contests students participated in include: Cyber Defense Competition (66.7%), Hackathon (13.3%), and RA Programs (13.3%; see Table 34).

When asked to rate their class attendance, the majority (69.1%) of students reported that they rarely or never missed class, 30.9% reported some absences, but no student reported excessive absences (see Table 35). Reasons for not attending classes included illness (34.5%), need to work/can't get time off (20.0%), transportation issues (16.4%), child care issues (10.9%), and 41.3% reported other reasons (see Table 36).

Overall, students reported that the following IWCC resources were helpful: financial aid services/counseling (93.9%), supplemental instruction (90.0%), workshops (90.0%), and academic advising (88.5%; see Table 37). Almost all (92.7%) of the students reported that they have access to everything they need in order to learn (see Table 38). For the students that do not have access to everything they need in order to learn, they reported that they need more and better CIT tutors (50.0%), computers that can handle the software (25.0%), and more time (25.0%; see Table 39).

*Valuable Lessons and Improvement.* Finally, when asked to list the most valuable lessons they have learned at IWCC, a few students reported that they learned time management, school is hard work, apply yourself, communication, to keep trying, and you will never stop learning (see Table 40). When asked to list the most valuable lessons they had learned in the CIT program, a few students reported learning specific software/programming languages, programming language similarities, ask questions/for help, and the learning of new things (see Table 41).

Some students suggested the following as ways services, interactions, and information could be improved: more real world applications, Workplace Empowerment class needs work, get better cafeteria food, more friendly staff, and more timely response to emails (see Table 42). Almost half (40.9%) of the students indicated that making classes more available (e.g., more class times/sections, offer classes more often) would improve the CIT program (see Table 43).

Over three-fourths (78.2%) of the students indicated IWCC staff can contact them if needed (see Table 44). The majority (76.4%) of students expected to obtain IWCC CIT program credits within the next year (see Table 45). The remaining students are not going to continue because they have completed their program of study (61.5%) or are transferring to a different institution/college (7.7%; see Table 46).

The following tables present the descriptive statistics for each of the questions asked in the spring student survey.



## ENROLLMENT/GOALS

This section centers around enrollment, including current students enrolled at Iowa Western Community College, students who are currently employed, and students' specific CIT focus areas.

**Table 1.**  
*CIT focus area:*

Focus Areas	Percentage
Computer Science (Programming Concentration)	12.5
Computer Science (Systems Concentration)	3.6
Computer Science (Web Development Concentration)	5.4
Computer Science (e-Commerce Concentration)	1.8
Computers: Application & Web Programming	17.9
Computers: Cyber Security	3.6
Computers: Desktop Support Certificate	1.8
Computers: Management Information Systems	8.9
Computers: Network and System Administration	37.5
Computers: Programming Certificate	3.6
Computers: System Administration Certificate	1.8
Graphic Communications	1.8
Graphic Communications Diploma	0.0
Other	0.0

*n*=56

**Table 2.***Including this current semester, how many semesters have you completed at IWCC?*

Semesters	Percentage
0 semesters	5.4
1 semester	12.5
2 semesters	23.2
3 semesters	14.3
4 semesters	16.1
5 semesters	8.9
6 semesters	8.9
7 semesters	7.1
8 semesters	3.6
9 semesters	0.0
10 or more semesters	0.0

*n*=56**Table 3.***Not including this current semester, how many more semesters do you expect to complete?*

Semesters	Percentage
0 semesters	16.1
1 semester	10.7
2 semesters	32.1
3 semesters	12.5
4 semesters	8.9
5 semesters	3.6
6 semesters	3.6
7 semesters	0.0
8 semesters	7.1
9 semesters	1.8
10 or more semesters	3.6

*n*=56

**Table 4.***Have you attended IWCC continuously since you first started?*

Response	Percentage
Yes	73.2
No	21.4
This is my first semester	5.4

*n=56***Table 5.***What is your anticipated graduation/program completion date?*

Response	Percentage
05/2018	28.6
05/2017	17.9
05/2019	16.1
12/2017	14.3
08/2017	3.6
08/2018	3.6
12/2018	3.6
Unknown	3.6
07/2017	1.8
07/2018	1.8
1/2019	1.8
05/2021	1.8
05/2029	1.8

*n=56*

**Table 6.**

*Are you eligible to receive TAA (Trade Adjustment Assistance) Benefits?*

Response	Percentage
Yes	3.6
No	62.5
Not sure	33.9

*n*=56

**Table 7.**

*Are you a part of the Workforce Investment Act (WIA) program that provides tuition assistance?*

Response	Percentage
Yes	1.8
No	62.5
Not sure	35.7

*n*=56

## ADVISING/REGISTRATION

This section describes students' opinions of Iowa Western Community College advising staff and registration process. Further, this section includes students' opinions and satisfaction with CIT software, CIT classes, and CIT instructors.

**Table 8.**  
*Who is your CIT advisor?*

Advisors	Percentage
William Barrett	20.0
Melanie Butterbaugh	7.3
John Magill	16.4
Carolyn Storm	1.8
Jared Bernard	14.5
Christie Keller	14.5
Connie Jones	7.3
Not Listed	5.5
I don't know who my advisor is/I don't have an advisor	12.7

*n*=55

**Table 9.**

*Please indicate the extent with which you agree or disagree with each of the following statements about your advisor.*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Not Applicable
My advisor is friendly	50	10.0	2.0	6.0	26.0	56.0	5
My advisor is helpful	50	10.0	2.0	8.0	20.0	60.0	5
My advisor is knowledgeable about program requirements	49	10.2	2.0	8.2	18.4	61.2	6
My advisor is knowledgeable about requirements for transferring to another college	39	12.8	2.6	15.4	23.1	46.2	16
My advisor is available/accessible	51	9.8	2.0	11.8	21.6	54.9	4
My advisor helped me set goals	49	12.2	8.2	14.3	18.4	46.9	6

*Note:* Values reflect percentages.

**Table 10.**

*How often do you meet with your advisor?*

Meet Times	Percentage
Once per semester	43.6
Monthly	14.5
Once every other week	0.0
Once per week	5.5
More than once per week	1.8
I have not met with an advisor	34.5

*n*=55

**Table 11.**  
*On average, meetings with the advisor lasts approximately:*

Time Periods	Percentage
1-15 minutes	25.5
16-30 minutes	34.5
31-45 minutes	3.6
46-60 minutes	1.8
Over an hour	0.0
I have not met with an advisor	34.5

*n*=55

**Table 12.**  
*Please indicate the extent with which you agree or disagree with each of the following statements:*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total Agree
Registering for classes is easy	55	5.5	5.5	7.3	43.6	38.2	81.8
Instructions for registering online are easy to understand	55	9.1	5.5	7.3	41.8	36.4	78.2
I prefer to have help when registering for classes	55	18.2	14.5	23.6	25.5	18.2	43.7

*Note:* Values reflect percentages.

**Table 13.**  
*How can the registration process be improved?*

Response	Percentage
System is unintuitive	33.3
Simplify	9.5
Avoid changing course number in middle of course structure	4.8
Create a “wish list” program	4.8
Detailed page for what is required for major	4.8
Easy instructions to follow	4.8
Hand out papers with classes on them	4.8
Have a tutorial on the web page	4.8
Have course catalog visible when registering	4.8
Have more summer face to face classes	4.8
Issues with the wait list	4.8
Provide an individualized calendar	4.8
Updated videos for assistance	4.8
When classes change, inform students	4.8

n=21



**Table 14.**  
*How can the advising process be improved?*

Response	Percentage
Create a form/app that allows the student to set up a meeting	27.3
Advisors could be more caring - communication	9.1
Advisors could be more friendly	9.1
Advisors could be more helpful	9.1
Encourage students to talk with advisor	9.1
Have mandatory advising meetings	9.1
Make sure the student knows their advisor	9.1
Provide more than one advisor per student	9.1
Tell students what classes transfer	9.1

*n*=11

## COURSE EVALUATION

This section centers on the helpfulness of the CIT program classes.

**Table 15.**

*Please indicate how helpful the following classes have been in improving your employable skills.*

Courses	<i>n</i>	Not At All Helpful	Slightly Helpful	Fairly Helpful	Very Helpful	Have Not Taken
ACC 121	3	0.0	33.3	0.0	66.7	3
ART 147	1	0.0	0.0	0.0	100.0	0
BCA 134	0	0.0	0.0	0.0	0.0	1
BCA 142	0	0.0	0.0	0.0	0.0	1
BCA 155	1	0.0	0.0	0.0	100.0	0
BCA 184	0	0.0	0.0	0.0	0.0	1
BUS 102	1	0.0	0.0	0.0	100.0	5
BUS 121	0	0.0	0.0	0.0	0.0	1
BUS 130	0	0.0	0.0	0.0	0.0	2
BUS 154	2	0.0	50.0	0.0	50.0	5
CIS 127	17	11.8	17.6	23.5	47.1	14
CIS 134	16	0.0	18.8	37.5	43.8	5
CIS 139	12	8.3	0.0	16.7	75.0	3
CIS 144	3	0.0	33.3	33.3	33.3	12
CIS 151	2	50.0	0.0	50.0	0.0	8
CIS 158	2	50.0	0.0	50.0	0.0	8
CIS 171	12	0.0	0.0	25.0	75.0	4
CIS 175	3	0.0	0.0	33.3	66.7	13
CIS 187	2	0.0	0.0	100.0	0.0	7
CIS 207	16	0.0	6.3	25.0	68.8	5
CIS 213	9	0.0	11.1	22.2	66.7	6
CIS 215	2	0.0	0.0	50.0	50.0	11
CIS 227	3	0.0	0.0	100.0	0.0	10
CIS 332	36	2.8	13.9	16.7	66.7	11
CIS 780	9	0.0	11.1	22.2	66.7	22
CRJ 100	1	0.0	100.0	0.0	0.0	1
CSC 110	9	22.2	11.1	22.2	44.4	3
CSC 114	46	19.6	21.7	21.7	37.0	8
CSC 121	39	5.1	17.9	20.5	56.4	6
ENG 105	15	20.0	6.7	26.7	46.7	5
ENG 106	9	22.2	11.1	11.1	55.6	11
GRA 104	1	0.0	0.0	0.0	100.0	0
GRA 121	1	0.0	0.0	0.0	100.0	0
GRA 137	1	0.0	0.0	0.0	100.0	0
GRA 140	1	0.0	0.0	0.0	100.0	0

Courses	<i>n</i>	Not At All Helpful	Slightly Helpful	Fairly Helpful	Very Helpful	Have Not Taken
GRA 141	1	0.0	0.0	0.0	100.0	0
GRA 148	1	0.0	0.0	0.0	100.0	0
GRA 165	0	0.0	0.0	0.0	0.0	1
GRA 173	1	0.0	0.0	0.0	100.0	0
GRA 908	1	0.0	0.0	0.0	100.0	0
GRA 949	1	0.0	0.0	0.0	100.0	0
JOU 110	1	0.0	0.0	100.0	0.0	0
MGT 101	0	0.0	0.0	0.0	0.0	1
MGT 195	19	15.8	26.3	15.8	42.1	13
MKT 110	1	0.0	0.0	0.0	100.0	1
MKT 140	0	0.0	0.0	0.0	0.0	1
MKT 150	1	0.0	0.0	0.0	100.0	0
MKT 154	0	0.0	0.0	0.0	0.0	1
MKT 184	0	0.0	0.0	0.0	0.0	1
MKT 198	0	0.0	0.0	0.0	0.0	1
MMS 113	0	0.0	0.0	0.0	0.0	1
NET 142	15	13.3	13.3	40.0	33.3	6
NET 162	2	50.0	0.0	0.0	50.0	4
NET 213	19	0.0	10.5	26.3	63.2	3
NET 225	9	0.0	11.1	0.0	88.9	12
NET 226	9	0.0	11.1	0.0	88.9	12
NET 227	10	0.0	10.0	10.0	80.0	11
NET 313	20	0.0	50.0	20.0	75.0	4
NET 343	10	0.0	10.0	10.0	80.0	13
NET 418	18	0.0	5.6	22.2	72.2	6
NET 478	18	5.6	16.7	27.8	50.0	4
NET 495	9	0.0	11.1	22.2	66.7	11
NET 612	11	0.0	18.2	18.2	63.6	24
NET 785	19	21.1	21.1	5.3	52.6	6
NET 790	18	5.6	27.8	11.1	55.6	5
NET 795	16	12.5	43.8	0.0	43.8	7
NET 810	9	0.0	22.2	0.0	77.8	22
PHI 142	0	0.0	0.0	0.0	0.0	1
SPC 112	11	9.1	27.3	36.4	27.3	9
SPC 122	28	28.6	17.9	25.0	28.6	8

*Note:* Values reflect percentages.

**Table 16.**

*Please indicate the extent with which you agree or disagree with each of the following about your CIT instructors:*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total Agree
My instructors are friendly	55	0.0	1.8	3.6	45.5	49.1	94.6
My instructors are helpful	55	0.0	0.0	7.3	40.0	52.7	92.7
My instructors are knowledgeable about subject matter	55	0.0	0.0	1.8	43.6	54.5	98.1
My instructors are available to answer questions about class, homework, or assignments	55	0.0	0.0	3.6	41.8	54.5	96.3
My instructors are accessible	55	0.0	1.8	5.5	41.8	50.9	92.7
My instructors provide guidance as needed	55	0.0	0.0	5.5	47.3	47.3	94.6

*Note:* Values reflect percentages.

## PROGRAM AND FACILITIES EVALUATION

This section centers on the CIT program, the facilities associated with the program, and the software used in the program.

**Table 17.**

*Please indicate how satisfied you are with each of the following:*

Statements	<i>n</i>	Very Dissatisfied	Somewhat Dissatisfied	Neither Satisfied or Dissatisfied	Somewhat Satisfied	Very Satisfied	Did Not Use
CIT Program	51	3.9	2.0	3.9	21.6	68.6	4
Quality of CIT Instruction	52	1.9	3.8	5.8	17.3	71.2	3
Availability of CIT courses	52	3.8	9.6	11.5	25.0	50.0	3
CIT courses that are offered	52	1.9	1.9	7.7	32.7	55.8	3
F103 Comp. Eq.	33	3.0	3.0	9.1	33.3	51.5	22
F104 Comp. Eq.	29	3.4	0.0	6.9	34.5	55.2	26
F107 Comp. Eq.	34	0.0	2.9	5.9	23.5	67.6	21
F116-F118 Comp. Eq.	38	2.6	5.3	7.9	36.8	47.4	17
Virtualized Servers	48	4.2	12.5	8.3	27.1	47.9	7
CCNA eq.	26	0.0	3.8	11.5	38.5	46.2	29
Lab Space	35	0.0	2.9	2.9	28.6	65.7	20
Size of classes	48	0.0	0.0	0.0	31.3	68.8	7
Opportunities to interact with other students	49	0.0	2.0	4.1	26.5	67.3	6
Availability of CIT faculty outside of the classroom	46	0.0	2.2	8.7	19.6	69.6	9

*Note:* Values reflect percentages.

**Table 18.***Please indicate the extent with which you enjoyed learning the following software offered:*

Software	<i>n</i>	Not Much	Little	Somewhat	Much	A Great Deal	Have Not Used
Remote VDI	36	5.6	11.1	16.7	19.4	47.2	19
Android Studio	9	22.2	0.0	22.2	11.1	44.4	46
Eclipse	25	8.0	4.0	16.0	28.0	44.0	30
NetLab	50	4.0	10.0	30.0	22.0	34.0	5
Visual Studio	22	4.5	9.1	9.1	13.6	63.6	33
Adobe Creative Cloud	20	15.0	10.0	20.0	5.0	50.0	35
Dreamweaver	21	14.3	4.8	9.5	23.8	47.6	34
MS Office	49	2.0	2.0	16.3	26.5	53.1	6
VMware	48	4.2	0.0	20.8	27.1	47.9	7
Linux	44	0.0	9.1	9.1	20.5	61.4	11
MS SQL Server	31	0.0	6.5	9.7	35.5	48.4	24
MySQL Workbench	37	0.0	2.7	10.8	32.4	54.1	18
Aptana	7	28.6	14.3	0.0	14.3	42.9	48
Notepad++	31	0.0	0.0	3.2	22.6	74.2	24
Sharepoint	6	33.3	0.0	16.7	0.0	50.0	49
Wordpress	14	0.0	21.4	28.6	21.4	28.6	41
IDLE	14	7.1	0.0	7.1	35.7	50.0	41
Photoshop	24	16.7	0.0	16.7	16.7	50.0	31
PowerShell	21	0.0	4.8	14.3	28.6	52.4	34
Windows Server Management	26	3.8	0.0	15.4	26.9	53.8	29

*Note:* Values reflect percentages.

## ACTIVITIES

This section centers on activities available through the CIT program.

**Table 19.**

*Please indicate the extent with which you found the following activities valuable:*

Activities	<i>n</i>	Not Valuable	Limited Value	Average Value	Valuable	Very Valuable	Did Not Use	Did Not Know About
CIT E-Newsletter	13	23.1	23.1	0.0	30.8	23.1	14	28
CIT Student Club	15	26.7	20.0	6.7	26.7	20.0	21	19
Cyber Defense Competition	23	4.3	4.3	8.7	21.7	60.9	23	9
Data Center Facility Tour	19	5.3	5.3	10.5	26.3	52.6	15	21
Hackathons (36 hour coding competition)	9	22.2	0.0	0.0	11.1	66.7	22	24
Internship Opportunities	31	3.2	0.0	9.7	22.6	64.5	16	8
IT Career Fair	34	2.9	2.9	11.8	32.4	50.0	15	6
IT Internship/ Job Board	27	0.0	3.7	22.2	22.2	51.9	18	10
Mock Interviews	21	0.0	9.5	9.5	19.0	61.9	22	12
Professional Photo Day	17	0.0	11.8	5.9	17.6	64.7	27	11
Resume Review	19	0.0	0.0	5.3	10.5	84.2	23	13
Succeed in IT – ROC webpage	23	4.3	4.3	13.0	21.7	56.5	16	16
Speakers	24	0.0	8.3	12.5	37.5	41.7	18	13

*Note:* Values reflect percentages.

## EMPLOYMENT

This section centers on student employment.

**Table 20.**

*Are you currently employed?*

Response	Percentage
Yes	65.5
No	34.5

*n*=55

**Table 21.**

*Are you employed in an IT position?*

Response	Percentage
Yes	47.2
No	52.8

*n*=36

**Table 22.**

*Are you employed full time or part time?*

Response	Percentage
Full time	50.0
Part time	50.0

*n*=36



**Table 23.**  
***What is the name of the company where you are employed?***

Response	Percentage
IWCC	12.9
Best Buy (Geek Squad)	9.7
Proxibid	9.7
Atlantic Bottling Co.	6.5
Godfather's Pizza	6.5
All Makes Office Equipment	3.2
American Amusements	3.2
Complete Nutrition	3.2
Concrete Creations LLC	3.2
Diversified Solutions	3.2
Foundry Services	3.2
Heartland Family Service	3.2
Hy-Vee	3.2
Lakeside Country Store	3.2
Modis Technology Engineering	3.2
Nebraska Furniture Mart	3.2
Nebraska Medicine	3.2
PayPal	3.2
Sapp Bros.	3.2
USPS	3.2
Walgreens	3.2
Welcome Center Desk	3.2
Wells Fargo Home Mortgage	3.2

*Note:* Some respondents provided multiple responses.  
*n*=31

**Table 24.**  
*What is the month and year (mm/yyyy) when you started employment at the company above?*

Response	Percentage
01/2017	16.1
03/2017	12.9
04/2017	12.9
02/2017	6.5
2009	3.2
08/2003	3.2
03/2009	3.2
01/2013	3.2
02/2014	3.2
04/2014	3.2
07/2014	3.2
08/2014	3.2
10/2014	3.2
02/2015	3.2
04/2015	3.2
09/2015	3.2
12/2015	3.2
02/2016	3.2
07/2016	3.2
08/2016	3.2
10/2016	3.2
08/2017	3.2

*Note:* Some respondents provided multiple responses.  
*n*=31

**Table 25.*****Are you going to work full time after you graduate from IWCC?***

Response	Percentage
Yes, at the same company where I currently work part time	5.6
Yes, at a different company from where I currently work part time	44.4
No, I plan to continue working part time	5.6
I don't know	44.4

*n*=18**Table 26.*****How are you hoping the CIT program will help you with your career goals? (Select all that apply)***

Response	Percentage
I want to strengthen my skills in IT	88.2
I need it in order to get an increase in wages	23.5
I need it to get promoted at my current job	23.5
I need it to go from part time to full time employment	17.6
The degree will allow me to get a better job with a different employer	29.4
Other	11.8
I have not chosen CIT as a degree program	0.0

*Note:* The percentages do not add up to 100%.*n*=17*Reponses from the "Other" choice:**Has already helped me get this job (1)**I want to do a job that I enjoy going to (1)*

**Table 27.**  
***Why did you choose CIT as a degree program? (Select all that apply)***

Response	Percentage
I am interested in IT	68.4
I want to work in the IT field	52.6
I need it in order to get an increase in wages or get promoted at my current job	5.3
The degree will allow me to get a better job with a different employer	36.8
Other	5.3
I have not chosen CIT as a degree program	0.0

*Note:* The percentages do not add up to 100%.

*n=19*

*Reponses from the "Other" choice:*

*I want to program because I find it fun (1)*

## INTERNSHIPS

This section centers on the internships available to students with local employers.

**Table 28.**

*How many internships were you able to secure over the past year?*

Response	Percentage
0 internships	72.7
1 internship	18.2
2 internships	7.3
3 internships	1.8
More than 3 internships	0.0

*n*=55

**Table 29.**

*Where you able to secure full time IT employment as a result of your internship?*

Response	Percentage
Yes	20.0
No	80.0

*n*=15

**Table 30.**

*What is the name of the company where you are/will be employed full time?*

Response	Percentage
Layton Flower Technologies	66.7
All Makes Office Equipment	33.3

*n*=3

## ENGAGEMENT

This section gauges students' involvement with Iowa Western Community College extra-curricular activities including campus clubs, organizations, events, and contests. This section also includes students' class attendance and opinion of academic resources.

**Table 31.**  
*Do you participate in any IWCC clubs or organizations?*

Response	Percentage
Yes	14.5
No	85.5

*n=55*

**Table 32.**  
*Do you participate in any IWCC events or contests?*

Response	Percentage
Yes	30.9
No	69.1

*n=55*

**Table 33.**  
*Which IWCC clubs or organizations do you participate in?*

Response	Percentage
Tech Club	71.4
Phi Theta Kappa	14.3
RA	14.3

*n=7*

**Table 34.**  
*Which IWCC events or contests have you participated in?*

Response	Percentage
Cyber Defense Competition	66.7
Hackathon	13.3
RA Programs	13.3
Casino Night	6.7
Intramurals	6.7
Student Center events	6.7
Various Suites 2 events	6.7

*Note:* Some respondents provided multiple responses.  
*n*=15

**Table 35.**  
*In general, how would you rate your class attendance?*

Absences	Percentage
Excessive absences	0.0
Some absences	30.9
Rarely absent	47.3
Never miss class	21.8

*n*=55

**Table 36.*****In general, what is the main reason for not attending classes? (Select all that apply)***

Reasons for Not Attending Class	Percentage
Illness	34.5
Child care issues	10.9
Transportation issues	16.4
Need to work/can't get time off	20.0
Other	41.3

Note: The percentages do not add up to 100%.

*n*=55

Reponses from the "Other" choice:

*I don't (4)*

*Could understand materials from home (2)*

*For mental health (2)*

*Life events/issues (2)*

*Family reasons (1)*

*Just didn't go to class (1)*

*Long term medical issues (1)*

*Not useful class time (1)*

*Over slept (1)*

*Unaware of assignment (1)*

*Work (1)*

**Table 37.*****Please indicate the extent with which each of the following resources has helped you:***

Statements	<i>n</i>	Not At All Helpful	Slightly Helpful	Fairly Helpful	Very Helpful	Have Not Used
Tutoring	14	28.6	28.6	21.4	21.4	41
Financial Aid Services/ Counseling	33	0.0	6.1	30.3	63.6	22
Academic Advising	35	0.0	11.4	17.1	71.4	20
Supplemental Instruction	10	10.0	0.0	30.0	60.0	45
Workshops	10	10.0	0.0	30.0	60.0	45
Other	2	0.0	0.0	0.0	100.0	53

Note: Values reflect percentages.

Reponses from the "Other" choice:

*Do research after class (1)*

*Terry Bailey (1)*



**Table 38.**

*Do you have access to everything you need in order to learn?*

Response	Percentage
Yes	92.7
No	7.3

*n*=55

**Table 39.**

*If no, what do you need?*

Response	Percentage
More and better CIT tutors	50.0
Computers that can handle the software	25.0
More time	25.0

*n*=4

## VALUABLE LESSONS AND IMPROVEMENT

This section focuses on the value of students' learning experiences at Iowa Western Community College and the CIT program. Students further provided suggestions and comments on ways in which IWCC can improve both the CIT program and as a college overall.

**Table 40.**

*To date, what has been the most valuable lesson that you have learned at IWCC?*

Response	Percentage
Time management	20.0
School is hard work	8.6
Access to help/proper tools helps	5.7
Apply yourself	5.7
Communication	5.7
Knowledge gain	5.7
To keep trying	5.7
You will never stop learning	5.7
Check assignment drop box every day	2.9
Design is simple	2.9
Go to class	2.9
Google is your friend	2.9
I learn a lot better if I enjoy the material	2.9
I still have to teach myself programming	2.9
Internships are strongly recommended	2.9
Life is full of surprises	2.9
Make sure someone isn't a liar	2.9
Make use of ROC and online courses	2.9
The school doesn't assist in finding internships	2.9
Working as a contractor for Terry Bailey	2.9
You don't have to try very hard to get Associate's Degree	2.9

n=35

**Table 41.***To date, what has been the most valuable lesson that you have learned in the CIT program?*

Response	Percentage
Specific software/programming languages	18.4
Programming languages are similar	13.2
Ask questions/for help	7.9
Learning new things	7.9
Everything	5.3
Be patient	2.6
Computer skills	2.6
Find out what semesters your degree follows	2.6
Friendship	2.6
Hackathons are fun	2.6
How complex technology is	2.6
I am not going to enjoy everything	2.6
Jobs will be assisted with Google	2.6
Learning about IT jobs	2.6
Less expensive to but the books and teach yourself	2.6
Networking	2.6
Practice makes perfect	2.6
Programming isn't for everyone	2.6
There are a lot of cool things to learn	2.6
Time management	2.6
Trust your teachers	2.6
Work with classmates	2.6
You can only rely on yourself	2.6

*n*=38

**Table 42.**  
***Thinking about all of your experiences with the various staff and processes at IWCC over time, what can we do to improve our services, interactions, information, etc.?***

Response	Percentage
More real world applications	11.1
Workplace Empowerment needs work	11.1
Always strive to be better	5.6
Favoritism needs work	5.6
Get better cafeteria food	5.6
Give full credit for classes taken in quarter system	5.6
Have more times available for classes	5.6
Hire teachers and tutors interested in answering questions	5.6
Instructors need to better utilize ROC	5.6
More friendly staff	5.6
More interaction in online classes	5.6
More timely response to emails	5.6
Post free time of teachers	5.6
Provide a detailed agenda for events	5.6
Software that shows changes to assignments	5.6

n=18

**Table 43.***Do you have any suggestions or comments for improving the CIT program?*

Response	Percentage
Make classes more available	40.9
More text based curriculum	9.1
Better computer equipment	4.5
Computer language theory class	4.5
Eliminate Networking Essentials	4.5
Greater emphasis on available programs	4.5
Implement more programming languages	4.5
Intro to Programming needs work	4.5
Make the second year worth the money – too much repeat	4.5
More emphasis on Workplace Empowerment	4.5
More tutors/tutoring	4.5
Offer a hardware class	4.5
Redo Intro to IT into a theory class	4.5

*n=22***Table 44.***Can IWCC staff contact you if needed?*

Response	Percentage
Yes	78.2
No	21.8

*n=55*

**Table 45.*****Do you anticipate additional IWCC CIT program credits within the next year?***

Response	Percentage
Yes	76.4
No	23.6

*n*=55**Table 46.*****Why do you not anticipate additional IWCC CIT program credits within the next year?***

Response	Percentage
Degree/diploma/certificate completed	61.5
Transferring to another IWCC program	7.7
Transferring to a different institution/college	7.7
Graduated	7.7
Other	15.4

*n*=13*Reponses from the "Other" choice:**Changing major (1)*



## **Appendix I:**

### **Student Internship Survey Evaluation Report: Spring 2017**

## METHODOLOGY

A student internship survey was developed to assess students' experiences with and perceptions about their internships. A link to the electronic survey was distributed to students that participated in at least one internship during between Fall 2014 and Spring 2017 semesters by members of ITC<sup>2</sup> Project team. The survey was taken 35 times by students.

*General Information about the Internship.* Students were asked to identify the business/company that provided the internship opportunity, the length of the internship, hourly wage paid by the internship, and how they heard about the internship.

*Student Experiences and Rating of the Internship.* Students were asked to rate various aspects of their internships; knowledge gained during the internship (e.g., new IT skills), whether the internship had an impact on them (e.g., improved communication skills, providing insight into the IT field), and whether the internship was helpful in gaining future employment (e.g., new skills relevant in future employment).

Students were to rate the helpfulness of software/systems coursework (e.g., Visual Studio, NetLab) in completing their internship and to identify any other software used but not covered in CIT program. Students were asked whether they received a job offer as a results of their internship. They were also asked to identify anything that the CIT program is missing that would have better prepared them for the internship.

*Strengths and Challenges.* Students were also asked to share their thoughts about the strengths and challenges of their internship.

Lastly, students were asked to provide some basic demographic information (e.g., name, non-IWCC email address) and focus area within the program.



## RESULTS

*General Information about the Internship.* Eleven students had internships with Iowa Western Community College, three with Phil and Jan Waggoner Ministries, and two each with Boys and Girls Club, Latino Center, Proxibid, and UI Partners (see Table 1). Over one-third (37.1%) of the respondents indicated their internship lasted 13 weeks or more, 28.6% indicated 0-4 weeks, and 5.7% indicated 5-8 weeks (see Table 2). The majority (79.3%) of respondents were paid \$10/hour-\$15/hour for their internship (see Table 3).

Over half (54.3%) of the students found their internship opportunity through the Internship Coordinator, 11.4% found their internship through a CIT faculty member, and 28.6% found their internship by other means (see Table 4).

*Student Experiences and Ratings of Internship.* Students were asked to rate various aspects of their internships. Almost all (94.1%) of the students agreed the internship made them better in the IT field; 91.2% agreed that the internship improved their IT skills they had prior to the start of the internship, agreed they have new IT skills because of the internship, and agreed their internship had an impact on them; and 88.2% agreed that their internship provided them meaningful insight into the IT field and agreed their new IT skills, received from their internship, will be relevant in future employment and class work (see Table 5).

Students were asked to rate the helpfulness of their coursework in relation to various software packages used in their internship. Students mostly used MS Office, Remote Access VPN, Adobe CS6, and Dreamweaver. However, their ratings of usefulness varied from very helpful to not at all helpful (see Table 6). Students reported that they used other software in their internship (see Table 7). That software included Wordpress (36.4%), Reboot Restore RX (13.6%), Confluence (9.1%), GIMP (9.1%), JIRA (9.1%), and MS SQL (9.1%; see Table 8).

The majority (79.4%) of respondents indicated that they did not receive employment due to the internship (see Table 9). Almost three-fourths (73.5%) of the respondents indicated the CIT program is not missing something that would have better prepared them for their internship (see Table 10). With the ones that did indicate the CIT program is missing something, the respondents indicated more info (22.2%), introduction to Wordpress (11.1%), more help with communication skills (11.1%), and Photoshop basics (11.1%) as potential areas of improvement (see Table 11).

*Strengths and Challenges.* Strengths of the internship included: gained real-world experience (36.7%), gained confidence (16.7%), worked with different people (16.7%), communication (10.0%), and test and challenge skills (10.0%; see Table 12). Challenges of the internship included: coursework did not always apply (15.0%), lack of communication (10.0%), and supervisor did not understand IT (10.0%; see Table 13).

*Area of CIT Focus.* Approximately one-fourth (23.5%) of the students indicated their area of focus was Application and Web Programming, 17.6% indicated Network and System Administration, and 11.8% indicated Web Programming. Almost one-third (29.4%) indicated

“Other” (see Table 14). It should be noted that the CIT focus areas changed throughout the grant. This survey was created in 2014 and reflects the CIT focus areas at that time.

The following tables present the descriptive statistics for each of the questions asked in the student internship Survey.

## GENERAL INFORMATION ABOUT THE INTERNSHIP

The following section describes general information about the internship.

**Table 1.**

*What is the name of your internship employer (company name)?*

Responses	Percentage
Iowa Western Community College	31.4
Phil and Jan Waggoner Ministries	8.6
Boys and Girls Club	5.7
Latino Center	5.7
Proxibid	5.7
UI Partners	5.7
ANDY Foundation	2.9
Asylumspriation Books	2.9
Buckshot Adventures	2.9
Happy Trails Cycle Project	2.9
Installations Made Easy	2.9
New Visions Omaha	2.9
Omaha Power Public District	2.9
Synchronicity	2.9
Tabernacle Baptist Church	2.9
Test TDB	2.9
Union Pacific Railroad	2.9
Woodmen of the World Life Insurance Company	2.9
WRK Systems	2.9

*n*=35

**Table 2.**  
*How long did your internship last?*

Length of Internship	Percentage
0-4 weeks	28.6
5-8 weeks	5.7
9-12 weeks	0.0
13 weeks or more	37.1
In Progress	10.0

*n*=35

**Table 3.**  
*What was the hourly wage paid by the internship?*

Internship	Percentage
Less than \$10/hour	10.3
\$10/hour - \$15/hour	79.3
\$15.01/hour - \$20/hour	3.4
More than \$20/hour	0.0
This was not a paid internship	6.9

*n*=29

**Table 4.**

*How did you find/hear about the internship opportunity? (Select all that apply)*

Appointment	Percentage
Internship Coordinator	54.3
CIT faculty member	11.4
Web Search Engine	0.0
IT Career Fair at IWCC	5.7
LinkedIn/CareerLink	0.0
Other	28.6

*Note: The percentages do not add up to 100%.*

*n=35*

*Responses from the "Other" choice:*

*Approached by Employer (2)*

*Employee (2)*

*Start-Up Grind (2)*

*Networking (1)*

*Posting in class (1)*

## STUDENT EXPERIENCES AND RATINGS OF INTERNSHIP

The following section describes students' ratings of their internship, helpfulness of IWCC coursework/software in completing internship,

**Table 5.**  
*Please rate the following aspects of your internship.*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total Agree
I learned something new in my internship at least once a week.	34	0.0	2.9	17.6	44.1	35.3	79.4
This internship improved my IT skills I had prior to the start of the internship.	34	0.0	0.0	8.8	44.1	47.1	91.2
I have new IT skills because of my internship.	34	0.0	2.9	5.9	44.1	47.1	91.2
This internship improved my communication skills.	34	0.0	0.0	32.4	23.5	44.1	67.6
My internship had an impact on me.	34	2.9	0.0	5.9	50.0	41.2	91.2
My internship provided meaningful insight into the IT field.	34	0.0	0.0	11.8	50.0	38.2	88.2
My new IT skills, received from my internship, will help me in future job(s).	34	0.0	2.9	14.7	44.1	38.2	82.3
My new IT skills, received from my internship, will be relevant in future employment and class work.	34	0.0	0.0	11.8	52.9	35.3	88.2
This internship made me better in the IT field.	34	0.0	0.0	5.9	55.9	38.2	94.1

*Note:* Values reflect percentages

**Table 6.**

*Please indicate how helpful coursework was regarding each of the following software/systems in your internship.*

Software	<i>n</i>	Not At All Helpful	Slightly Helpful	Fairly Helpful	Very Helpful	Did Not Use at Internship
Remote Access VPN	14	28.6	7.1	21.4	42.9	20
NetLab	10	30.0	10.0	30.0	30.0	24
Adobe CS 6	13	23.1	7.7	30.8	38.5	21
Dreamweaver	12	33.3	8.3	33.3	25.0	22
MS Office	21	14.3	4.8	33.3	47.6	13
Visual Studio	9	44.4	0.0	22.2	33.3	25
VMware	10	40.0	0.0	20.0	40.0	24
Linux	11	36.4	0.0	18.2	45.5	23
Windows Server	11	27.3	0.0	27.3	45.5	18

*Note:* Values reflect percentages.

**Table 7.**

*Did you use any other software than the ones listed above?*

Response	Percentage
Yes	64.7
No	35.3

*n*=34

**Table 8.**  
*What other software did you use?*

Response	Percentage
Wordpress	36.4
Reboot Restore RX	13.6
Confluence	9.1
GIMP	9.1
JIRA	9.1
MS SQL	9.1
Active Directory	4.5
Adobe CC	4.5
An EPSON program	4.5
Clarity	4.5
Command Prompt	4.5
Connectwise	4.5
Cpanel	4.5
Deep Freeze	4.5
Google Chrome Cast	4.5
Javascript	4.5
Microsoft Expression	4.5
Nexpose	4.5
Notepad++	4.5
Paint.net	4.5
Photoshop	4.5
RedGate	4.5
SEO	4.5
Subversion (SVN)	4.5
Textpad	4.5
Tortious SVN	4.5
Weebly	4.5
WinGrep	4.5
WinMerge	4.5
WinSCP	4.5
Wix.com	4.5

*Note:* Some respondents provided multiple responses.  
*n*=22



**Table 9.**  
*Were you offered employment due to the internship?*

Response	Percentage
Yes at my internship place of work	5.9
Yes with different employer (not internship)	14.7
No	79.4

*n*=34

**Table 10.**  
*Now that you have completed your internship, is the CIT program missing something that would have better prepared you for the internship?*

Response	Percentage
Yes	26.5
No	73.5

*n*=34

**Table 11.**  
*What is the CIT program missing that would have better prepared you for the internship?*

Response	Percentage
More info	22.2
Full deployment of software	11.1
Git and GitHub	11.1
Help	11.1
Intro to Wordpress	11.1
More help with communication skills	11.1
Overview of different web development applications	11.1
Photoshop basics	11.1

*n*=9

## STRENGTHS AND CHALLENGES

This section centers on student comments about the internship and how the program prepares the students for the internships.

**Table 12.**  
*What do you feel are the strengths of the internship in general?*

Responses	Percentage
Gained real-world experience	36.7
Gained confidence	16.7
Working with different people	16.7
Communication	10.0
Test and challenge my skills	10.0
Gained professionalism	6.7
Hands on experience	6.7
Learning to work with clients	6.7
To learn that I am good at what I do	6.7
Art skills	3.3
Building and deploying applications	3.3
Gained personal integrity	3.3
Get some knowledge, but needs work	3.3
Going through entire project process	3.3
Good resume builder	3.3
Good to make connections with an established business	3.3
Knowledge of working with Adobe programs	3.3
Patience	3.3
Pay	3.3
Provided with all the required content	3.3
Work with different software	3.3
Working with limited resources	3.3

*Note:* Some respondents provided multiple responses.  
*n*=30

**Table 13.**  
*What do you feel are the challenges of the internship in general?*

Responses	Percentage
Coursework doesn't always apply	15.0
Lack of communication	10.0
Supervisor doesn't understand IT	10.0
Better communication	5.0
Catching up a lot in internship	5.0
Didn't get a chance to address troubleshooting software	5.0
Discussions with customers	5.0
Fear of being new	5.0
Issues on unfamiliar platform	5.0
Lack of having an Adobe program at all times	5.0
Lack of inclusion with company	5.0
May not be doing as much real work as I would like	5.0
Need more experience/training	5.0
Not sure if I know what I am doing	5.0
Patience with people	5.0
Project information was sparse	5.0
Should not be a requirement for graduation	5.0
Teach the back door of the network	5.0

*Note:* Some respondents provided multiple responses.  
*n*=20

## AREA OF CIT FOCUS

**Table 14.**

*Please identify your focus area at Iowa Western Community College:*

CIT Focus	Percentage
Application Programming (Assoc. of Arts)	2.9
Application and Web Programming (Assoc. of Applied Science)	23.5
Computer Networking (Assoc. of Arts)	2.9
Desktop Support Certificate (Certificate)	0.0
E-Commerce (Assoc. of Arts)	0.0
Graphic Communications (Assoc. of Applied Science)	8.8
Management Information Systems (Assoc. of Arts)	0.0
Network and System Administration (Assoc. of Applied Science)	17.6
Programming Certificate (Certificate)	0.0
System Administration Certificate (Certificate)	2.9
Web Programming (Assoc. of Arts)	11.8
Other	29.4

*n*=34



**Appendix J:**

**Internship Supervisor Survey Evaluation Report: Spring  
2017**

## METHODOLOGY

The internship supervisor survey, which comprises a portion of the implementation evaluation, was distributed to supervisors of students placed at internships at their respective companies. Internship supervisors were invited to complete an electronic survey by the ITC<sup>2</sup> Project team between Fall 2014 and Spring 2017. Fifteen internship supervisor surveys were completed.

Internship supervisors were asked to indicate their name, the company's name, and the name of their student intern. Supervisors were asked how the internship was initiated, that is, they were asked whether the IWCC Internship Coordinator or the student contacted them, whether the company contacted IWCC directly.

Supervisors described the student's role in the internship (e.g., removal of viruses, posting podcasts, examined systems for unwanted programs). Supervisors were asked to evaluate their intern in the following categories: professional behavior, knowledge of job, quality of work, attitude, personal characteristics, human relations, interview, and whether the intern was prepared for the internships. Supervisors were also asked to identify the strengths and weaknesses of the CIT program in preparing students for internships and were given opportunity to comment about the internships.

## RESULTS

The internship supervisors responding to the survey were from a variety of companies including Iowa Western Community College (33.3%), Happy Trails Cycle (13.3%), El Centro Latino of Council Bluffs (6.7%), and Schrock Innovations (6.7%; see Table 1). One-third (33.3%) of the supervisors reported that the internship was initiated by their company, 33.3% reported that the internship was initiated by the Internship Coordinator at IWCC, and 26.7% reported that the internship was initiated by other means (see Table 2). As part of their internship, students completed a variety of tasks including website design/revamp (28.6%), assisting in setting up a cash register (14.3%), and preparing pdfs/brochures (14.3%; see Table 3).

Internship supervisors were asked to evaluate their interns on several dimensions. Overall, internship supervisors agreed that students who completed internships were average to excellent in every area being evaluated (e.g., arriving to work on time, seeking to increase job knowledge, using time efficiently, accepting suggestions and criticisms, adapting to change, and using appropriate speech; see Table 4). Internship supervisors were also asked to rate how well students were prepared for the internship. The majority (53.3%) of the students were perceived as being excellently prepared for the internship and 40.0% of the students were perceived as being very well prepared (see Table 5).

Internship supervisors were asked to indicate what they perceived as the top strength of the CIT program in preparing students for the internships. The top strengths reported by the internship supervisors were the student had the needed skills (35.7%), the student had knowledge of graphic communications (14.3%), the student was prepared (14.3%), and the student was willing to learn (14.3%; see Table 6). When asked to identify a weakness of the CIT program, internship supervisors indicated student's follow-up was not strong (16.7%), student lacked confidence in abilities (16.7%), the task provided to the student was too large (16.7%), and the student could work on being more outgoing (16.7%; see Table 7).

Internship supervisors were given the opportunity to add any comments about the internship. Sentiments expressed included feeling blessed having the student, student was exactly what they were looking for, being impressed with student's technical abilities, and willingness of the student to complete multiple tasks (see Table 8).

The following tables present the descriptive statistics for each of the questions asked in the internship supervisor survey.

## QUESTIONS ABOUT THE STUDENT

This section centers on the student’s role and performance during the internship and the strengths and weaknesses seen as a result.

**Table 1.**

*Work site:*

Response	Percentage
IWCC	33.3
Happy Trails Cycle	13.3
El Centro Latino of Council Bluffs, Iowa	6.7
Looft Hall	6.7
New Visions Council Bluffs	6.7
New Visions Omaha	6.7
Schrock Innovations	6.7
Service Learning	6.7
Synchronicity	6.7
Unknown	6.7

*n*=15

**Table 2.**

*Who initiated the internship request?*

Initiating Party	Percentage
Your company	33.3
The student	6.7
The internship coordinator at IWCC	33.3
Other	26.7

*n*=15



**Table 3.**  
*What was the student's role within the internship?*

Response	Percentage
Website design/revamp	28.6
Assisted in setting up a cash register	14.3
Prepared pdfs/brochures	14.3
Logo development	7.1
Looked for faults in network	7.1
Looked for unwanted programs in network	7.1
Posted podcast and TV show to website	7.1
Removed viruses from computers	7.1
Worked with Salesforce program	7.1

*n*=14

**Table 4.**  
*Please evaluate the student in the following categories:*

Statements	<i>n</i>	Poor	Needs Improve- ment	Average	Very Good	Excellent
Arrives to work on time	12	0.0	0.0	8.3	16.7	75.0
Dresses appropriately	12	0.0	0.0	8.3	33.3	58.3
Grasps instructions quickly	14	0.0	0.0	0.0	35.7	64.3
Seeks to increase job knowledge	14	0.0	0.0	7.1	28.6	64.3
Asks appropriate questions	14	0.0	7.1	7.1	21.4	64.3
Work is proper and neat	13	0.0	0.0	7.7	15.4	76.9
Uses time efficiently	12	0.0	0.0	0.0	25.0	75.0
Sets priorities accurately	13	0.0	0.0	0.0	30.8	69.2
Shows initiative	14	0.0	0.0	7.1	21.4	71.4
Demonstrates enthusiasm	14	0.0	0.0	0.0	14.3	85.7
Accepts suggestions & criticisms	14	0.0	0.0	0.0	14.3	85.7
Voluntarily seeks additional work	11	0.0	0.0	0.0	18.2	81.8
Exercises independent thinking	14	0.0	0.0	7.1	21.4	71.4
Makes sound decisions	13	0.0	0.0	7.7	15.4	76.9
Adapts to change	13	0.0	0.0	7.7	23.1	69.2
Demonstrates integrity/ confidence	14	0.0	0.0	0.0	21.4	78.6
Cooperates with co-workers	12	0.0	0.0	0.0	25.0	75.0
Is courteous and friendly	14	0.0	0.0	0.0	21.4	78.6
Uses appropriate speech	14	0.0	0.0	0.0	21.4	78.6
Student presented a professional resume and cover letter when requesting an interview	0	0.0	0.0	0.0	0.0	0.0
Student was prepared for the interview process	1	0.0	0.0	0.0	100.0	0.0
Student was professional during the interview process	1	0.0	0.0	0.0	100.0	0.0

*Note:* Values reflect percentages.

**Table 5.**  
*How prepared was the student for the internship?*

Response	Percentage
Poor	0.0
Fair	0.0
Good	6.7
Very Good	40.0
Excellent	53.3

*n*=15

**Table 6.**  
*What is the top strength of the CIT program in relation to preparing students for the internship?*

Response	Percentage
Had needed skills	35.7
Knowledge of graphic communications	14.3
Student was prepared	14.3
Willingness to learn	14.3
Quality of work was excellent	7.1
Student did everything asked of him	7.1
Student rolled with the changes	7.1
Student understood business needs	7.1
System knowledge impressive	7.1
Very professional	7.1

*Note:* Some respondents provided multiple responses.

*n*=14

**Table 7.*****What is a weakness of the CIT program in relation to preparing students for the internship?***

Response	Percentage
Follow-up was not strong	16.7
Struggled to cope with working with two people	16.7
Student lacked confidence in abilities	16.7
Student uncomfortable with non-tech work functions	16.7
Task was too large	16.7
Work on being more outgoing	16.7

*n*=6**Table 8.*****Comments:***

Response	Percentage
Addressed the problems at hand	16.7
Appreciative of what was done	16.7
Blessing to have the students	16.7
Establish parameters that can be reviewed each time a task is presented to Enter IT	16.7
Exactly what we were looking for	16.7
Impressed with technical abilities	16.7
Interested and enthusiastic about helping expand capabilities	16.7
Students willing to complete multiple tasks	16.7

*Note:* Some respondents provided multiple responses.*n*=6



**Appendix K:**

**Employer Partner Survey Evaluation Report: Fall 2015**

## METHODOLOGY

To evaluate the working relationship that Iowa Western Community College's (IWCC) Computer Information Technology (CIT) has with employer partners, the Research Institute for Studies in Education (RISE) developed an employer partner survey. The survey was distributed via email sent by the ITC<sup>2</sup> Project team in Summer, 2015. Seven employer partners responded to the survey.

*Internships and/or Part-Time Work Experience.* The survey asked employer partners about internships and/or part-time work experience available to IWCC CIT students. In particular, employer partners were asked whether they had provided internships or part-time work experience opportunities to IWCC students in the past and whether they have any of those opportunities available now. They were also asked to identify the months in which they typically have internships or part-time work experience opportunities available.

Respondents were also asked to indicate the CIT areas (e.g., networking, programming) that are likely to have available internship or part-time work experience opportunities. Respondents were asked whether they would like to be contacted regarding student work experience opportunities available through IWCC.

*Employment.* Next, employer partners were asked to list the highest in-demand IT positions at their company along with the job skills/knowledge currently in-demand at their company. In addition, employer partner were asked to list highest in-demand IT positions or skills at their company anticipated in the next 5 to 10 years.

*Current Employee Training.* Employer partners were asked about current employee training needed. In particular, whether their current employees needed additional training and, if so, in what areas. They were asked whether they would like to be contacted about current employee training opportunities available through IWCC.

*Information about the Company.* Finally, employer partners were asked questions about their company (e.g., length of time collaborating with IWCC's CIT program, number of students hired from IWCC's CIT program, opportunities they provide for IWCC students).

## RESULTS

*Internships and/or Part-Time Work Experience.* When employer partners were asked whether they provided internships and part-time work experiences to IWCC CIT students, only 14.3% indicated that they did. The majority (71.4%) indicated that while they did have internships and part-time work experiences, none of these opportunities were provided to IWCC CIT students (see Table 1). Approximately one-fourth (28.6%) indicated that they would have opportunities available the following year and the remaining 71.4% indicated that they did not know whether the opportunities would be available (see Table 2).

The majority of respondents (85.7%) indicated their internships were available in June, July, and August, 71.4% indicated their internships were available in May, and just over half (57.1%) offered internships year round (see Table 3). Half (50.0%) of the respondents indicated that internships and part-time work experiences were available in Networking, Programming, and General IT Support (see Table 4). The majority (57.1%) of respondents did not want to be contacted regarding student work experience awareness opportunities available through the CIT department (see Table 5).

*Employment.* Employer partners were asked to list the highest in-demand IT positions, job skills/knowledge currently in-demand, and anticipated highest in-demand positions at their company. The current highest in-demand IT positions include help desk technicians/engineers (28.6%) and network engineers (28.6%; see Table 6). The job skills/knowledge currently in-demand at the employer partner companies include Cisco Networking (20.0%), Java (20.0%), Networking (20.0%), and Windows Desktop Support (20.0%; see Table 7). The anticipated highest in-demand positions include Cloud Migration (25.0%), Linux (25.0%), Networking (25.0%), Robotics (25.0%), and Troubleshooting (25.0%).

*Current Employee Training.* Two-thirds (66.7%) of the employer partners indicated their employees were not in need of additional training or certification (see Table 9). Those employers that indicated that their employees could use additional training identified the following areas in need of additional training or certification: CICS, COBOL, DB2, and Networking (see Table 10). None of the employer partners wanted to be contacted regarding current employee training opportunities available through IWCC (see Table 11).

*Information about You and Your Company.* In the last section, employer partners were asked how long their company had collaborated with the CIT program. Half (50.0%) of the employer partners indicated that they did not collaborate with IWCC, 33.3% had collaborated with IWCC for over two years, and 16.7% reported that they had collaborated with IWCC between one and six months (see Table 12). When asked how many IWCC CIT students had been hired in the past five years, almost all (83.3%) of the employer partners indicated that they had not hired any students from the CIT program whereas one company indicated they had hired between 11 and 15 students from the program (see Table 13).

Employers surveyed were asked whether they provided various opportunities (e.g., externships, tours) to students in the IWCC CIT program or their employees. The majority (83.3%) of employer partners reported that they pay for tuition, 66.7% hire the students and have them start

working before graduation, 66.7% pay for certification fees, and 50.0% provide tours to IWCC students or their employees (see Table 14). The majority (66.7%) of the employer partners responded that they did not want to be contacted regarding opportunities available at IWCC's CIT department.

The following tables present the descriptive statistics for each of the questions asked in the employer partner survey.



## INTERNSHIPS AND/OR PART-TIME WORK EXPERIENCE

This section centers on past and future internship or part-time work experience available to Iowa Western Computer Information Technology students through various employer partners.

**Table 1.**

*Has your company or department provided internship or part-time work experience opportunities to Iowa Western CIT students in the past?*

Response	Percentage
Yes	14.3
We have opportunities but have not provided any to IWCC students	71.4
We do not offer internships or part-time work experiences	0.0
I don't know	14.3

*n*=7

**Table 2.**

*Do you or will you have internship or part time work experience opportunities available for Iowa Western CIT students during the next year (July 2015 – June 2016)?*

Response	Percentage
Yes	28.6
No, we do not have any opportunities available during this time period	0.0
We do not offer internships or part-time work experience opportunities	0.0
I don't know	71.4

*n*=7

**Table 3.**

*In which of the following months do you typically provide internship or part-time work experience opportunities? (Select all that apply)*

Month	Percentage
January	57.1
February	57.1
March	57.1
April	57.1
May	71.4
June	85.7
July	85.7
August	85.7
September	57.1
October	57.1
November	57.1
December	57.1
We do not offer internships or part-time work experience opportunities	0.0

*Note:* The percentages do not add up to 100%.

*n*=7

**Table 4.**

*What areas of internship or part-time work experience opportunities are anticipated to be available? (Select all that apply)*

Areas of Information Technology	Percentage
Networking	50.0
Graphic Design	0.0
Programming	50.0
Help Desk	0.0
General IT Support	50.0
Other (please specify)	50.0

*Note:* The percentages do not add up to 100%.

*n*=2

*Responses from the "Other" choice:*

*Hardware and Linux Support (1)*

**Table 5.**

***Would you like to be contacted regarding student work experience awareness opportunities available through Iowa Western CIT Department?***

Response	Percentage
Yes, please contact me	28.6
Yes, please contact the following individual	14.3
No	57.1

*n=7*

*Responses from the “Yes, please contact the following individual” choice: Dave Black (dblack@lewiscentral.org)  
Dennis South (dsouth@lewiscentral.org)*

## EMPLOYMENT

This section centers on in-demand IT positions and skill sets at employer partner companies.

**Table 6.**

***Currently, what are the highest in-demand IT positions at your company?***

Response	Percentage
Help Desk Technicians/Engineers	28.6
Network Engineers	28.6
Cisco CCNA Engineers	14.3
COBOL, JCL Developers	14.3
Data Analytics	14.3
Middleware/Mid Tier Admin	14.3
Not PC or Help Desk	14.3
Operations Engineer	14.3
Service Center Support Staff	14.3
Websphere/Middle Tier Admin	14.3
Windows Engineer	14.3

*Note:* Respondents provided multiple responses.

*n=7*

**Table 7.**  
***What job skills/knowledge are currently in-demand at your company?***

Response	Percentage
Cisco Networking	20.0
Cisco UCS Servers	20.0
COBOL	20.0
Customer Service	20.0
DB2	20.0
Hardware	20.0
IPv6	20.0
Java	20.0
JCL	20.0
Linux	20.0
Networking	20.0
Troubleshooting	20.0
Virtualization	20.0
VMware virtualization	20.0
WebSphere	20.0
Wi-Fi	20.0
Windows Desktop Support	20.0

*Note:* Respondents provided multiple responses.  
*n=5*

**Table 8.**

*What do you anticipate being the highest in-demand IT positions or skills at your company in 5 to 10 years?*

Response	Percentage
COBOL	25.0
Cloud Migration	25.0
DB2	25.0
Hardware	25.0
Java	25.0
JCL	25.0
Linux	25.0
Networking	25.0
Robotics	25.0
Software defined networking	25.0
Troubleshooting	25.0
Virtualization	25.0
Web Developers (HTML 5, Java)	25.0
Web Serve (Apache)	25.0
WebSphere (Middleware)	25.0

*Note:* Respondents provided multiple responses.  
*n*=4

## CURRENT EMPLOYEE TRAINING

This section centers on possible current employee training.

**Table 9.**

*Are your current employees in need of additional training or certification regarding IT services (Help Desk certifications, Programming, Unix, VMWare, etc.)?*

Response	Percentage
Yes	33.3
No	66.7

*n*=6

**Table 10.**

*Which areas of training for your company's employees would be most beneficial?*

Response	Percentage
CICS	50.0
COBOL	50.0
DB2	50.0
JCL	50.0
Linux	50.0
Networking	50.0

*Note:* Respondents provided multiple responses.

*n*=2

**Table 11.**

*Would you like to be contacted regarding current employee training opportunities available through Iowa Western?*

Response	Percentage
Yes, please contact me	0.0
Yes, please contact the following individual	0.0
No	100.0

*n*=6

*Responses from the "Yes, please contact the following individual" choice: None*

## INFORMATION ABOUT YOU AND YOUR COMPANY

This section centers on demographic information about the employer partners.

**Table 12.**

*How long has your company collaborated with Iowa Western’s CIT program?*

Length of Partnership	Percentage
1-6 months	16.7
7 months – 1 year	0.0
1-2 years	0.0
Over 2 years	33.3
My company does not collaborate with IWCC	50.0

*n*=6

**Table 13.**

*Approximately, how many students has your company hired from Iowa Western’s CIT program in the past five years?*

Number of Hires	Percentage
1-5 hires	0.0
6-10 hires	0.0
11-15 hires	16.7
16-20 hires	0.0
21-25 hires	0.0
Over 25 hires	0.0
None	83.3

*n*=6



**Table 14.**

*Does your company currently offer, or have offer in the past six months, any of the following opportunities to students at Iowa Western or your employees?*

Opportunities	Yes	No
Externships	16.7	83.3
Tours	50.0	50.0
Resume Review	16.7	83.3
Mock Interviews	33.3	66.7
Pay for certification fees	66.7	33.3
Pay for certification dues	16.7	83.3
Pay for tuition	83.3	16.7
Hire and start working before graduation	66.7	33.3

*Note:* Values reflect percentages.  
n=6

**Table 15.**

*Would you like to be contacted regarding any of the above listed opportunities available at Iowa Western's CIT Department?*

Response	Percentage
Yes, please contact me	16.7
Yes, please contact the following individual	16.7
No	66.7

n=6

*Responses from the "Yes, please contact the following individual" choice: Julie Lane (jlane@cosentry.com)*



## **Appendix L:**

### **Employer Partner Survey Evaluation Report: Spring 2017**

## METHODOLOGY

An Employer Partner Survey was distributed in April 2017 to 74 employer/industry/business partners identified by Iowa Western Community College (IWCC) project staff. A total of 14 individuals with varying roles (e.g., CIO, directors, managers) representing individual businesses/companies responded to the survey (response rate = 18.9%). The companies represented by the respondents vary in scope (e.g., providers of support services, small business owners, insurance companies) and size (small to large).

Employer Partners were asked how long their respective companies had been partnering with IWCC, whether they've hired Computer Information Technology (CIT) students, and the number of students hired from the CIT program. They were asked whether any of their current employees were currently enrolled in the CIT program, whether they pay for certification fees/membership dues, pay for scholarships/tuition/tuition reimbursement, and provide company sponsored training to their employees. Employer Partners were asked whether they offered internships, externships, tours, resume review, mock interviews, and career fairs to IWCC students or faculty. Additionally, Employer Partners were asked whether they participated in their regional sector board, local advisory board, curriculum input, and incumbent worker training.

Employer Partners were also asked about their expectations of the CIT program and their views about IWCC students' preparedness to work in the Information Technology (IT) field and to share any thoughts about lessons learned with regards to the CIT program.

## RESULTS

Over one-third (42.9%) of the employer partners responded that they have collaborated with IWCC for over two years, 14.3% have collaborated with IWCC for approximately 1-2 years, 35.7% have collaborated with IWCC for about 1-6 months, and one respondent (7.1%) indicated that they have not collaborated with IWCC (see Table 1). Half (50.0%) of the respondents indicated they have hired 1-2 CIT students, 16.7% have hired 3-5 students, 8.3% have hired 11-15 students and 25.0% reported that they have not hired any CIT students (see Table 2).

Employer Partners were asked about the opportunities they offer to employees. One of the respondents reported that they have an employee currently enrolled in the CIT program (see Table 3). One-fourth (27.3%) of the respondents indicated that the company pays for certification fees/membership dues, 50.0% provide scholarships/tuition/tuition reimbursement, 50.0% provide flexibility to incumbent workers, and 60.0% provide company sponsored training (see Table 4).

Employer Partners reported that they provide the following opportunities for IWCC students and/or faculty: internships (72.7%), tours (45.5%), career fairs (45.5%), hire students to work prior to their graduation (37.5%), and mock interviews (27.3%; see Table 5).

Employer Partners were asked about their company's participation in CIT activities. Half (50.0%) indicated they have some/frequent participation in the regional sector board, 44.4% indicated some/frequent participation in the local advisory board, 44.4% indicated some/frequent participation in identifying occupational needs, and 22.2% indicated some/frequent participation in providing access to facilities for project meetings/trainings (see Table 6).

Overall, respondents indicated that the CIT program at IWCC has met or exceeded expectations in producing enough workers to meet hiring needs/demand for workers; making progress in producing quality workers to meet hiring needs/demand for workers; producing students that have the technical skills/abilities required to begin working with minimal training or guidance; and producing students that have the soft skills needed to begin working at their company (see Table 7).

Lastly, respondents were asked to provide any thoughts or comments about lessons learned with regards to the CIT program. Three Employer Partners indicated that they have had a good history of bringing IWCC graduates in as temps and then hiring them full time and that students have done a great job designing logo and working with the employer on a website (see Table 8).

The following tables present the descriptive statistics for each of the questions asked in the Employer Partner survey.

**Table 1.*****How long has your company collaborated with Iowa Western’s Computer Information Technology (CIT) program?***

Length of Collaboration	Percentage
1-6 months	35.7
7 months – 1 year	0.0
1-2 years	14.3
Over 2 years	42.9
We do not collaborate with IWCC	7.1

*n*=14**Table 2.*****Approximately, how many students has your company hired from Iowa Western’s CIT program in the past five years?***

Number of Hires	Percentage
1-2 hires	50.0
3-5 hires	16.7
6-10 hires	0.0
11-15 hires	8.3
16-20 hires	0.0
21-25 hires	0.0
Over 25 hires	0.0
None	25.0

*n*=12**Table 3.*****Do you have any employees currently enrolled in Iowa Western’s CIT program?***

Response	Percentage
Yes	8.3
No	58.3
I Don’t Know	33.3

*n*=12

**Table 4.**

*Does your company currently offer, or offered in the past four years, any of the following opportunities to employees?*

Activities	<i>n</i>	Yes	No	I Don't Know
Pay for certification fees/membership dues	11	27.3	72.7	1
Scholarships/Tuition/Tuition Reimbursement	12	50.0	50.0	0
Referring unsuccessful applicants to the CIT program	7	0.0	100.0	5
Flexibility to incumbent workers	10	50.0	50.0	2
Company Sponsored Training	10	60.0	40.0	2

*Note:* Values reflect percentages.

**Table 5.**

*Does your company currently offer, or offered in the past four years, any of the following opportunities to Iowa Western students or faculty?*

Activities	<i>n</i>	Yes	No	I Don't Know
Internships	11	72.7	27.3	0
Externships	11	0.0	100.0	0
Mentoring	11	9.1	90.9	0
Tours	11	45.5	54.5	0
Resume Review	10	0.0	100.0	1
Mock Interviews	11	27.3	72.7	0
Hire and start working before graduation	8	37.5	62.5	3
Career Fairs	0	45.5	54.5	0

*Note:* Values reflect percentages.

**Table 6.**  
***Does your company participate in any of the following CIT activities?***

Activities	<i>n</i>	No Participation	Little Participation	Some Participation	Frequent Participation	I Don't Know
Regional Sector Board	8	50.0	0.0	12.5	37.5	3
Local Advisory Board	9	55.6	0.0	22.2	22.2	2
Curriculum Input (apart from the Sector and Advisory Boards)	8	62.5	25.0	0.0	12.5	3
Identifying Occupational Needs	9	44.4	11.1	11.1	33.3	2
Provide access to facilities for project meetings/trainings	9	77.8	0.0	11.1	11.1	2
Incumbent worker training	9	88.9	0.0	0.0	11.1	2

*Note:* Values reflect percentages.

**Table 7.*****How well did Iowa Western's CIT program do in meeting each of the following:***

Statements	<i>n</i>	Far Short of Expectations	Short of Expectations	Meets Expectations	Exceeds Expectations	Far Exceeds Expectations	I Don't Know
Progress in producing enough workers to meet hiring needs/demand for workers.	7	0.0	0.0	57.1	28.6	14.3	4
Progress in producing quality workers to meet hiring needs/demand for workers.	8	0.0	0.0	62.5	25.0	12.5	3
Producing students that have the technical skills/abilities (e.g., knowledge of programming languages) required to begin working with minimal training or guidance.	8	0.0	0.0	50.0	37.5	12.5	3
Producing students that have the soft skills (e.g., communication skills, problem solving) required to begin working at my company.	8	0.0	0.0	87.5	0.0	12.5	3

*Note:* Values reflect percentages



**Table 8.**

*Please share any thoughts or comments about lessons learned with regards to the CIT program. What worked? Are there things you would change? (Please describe)*

Responses	Percentage
Good history of bringing IWCC graduates in as temps and have hired some full time	33.3
Student did a great job designing logo	33.3
Student worked with me on my website	33.3

*n*=3



**Appendix M:**

**Faculty Survey Evaluation Report: Spring 2017**

## METHODOLOGY

The faculty survey was distributed to and completed by five Computer Information Technology (CIT) faculty members at the end of the Spring 2017 semester.

Faculty were asked a series of questions about their role in the CIT program, certifications they have, and about any professional development they have participated in during the past 3 ½ years. Faculty were asked whether they had been given opportunities to participate in the development or modification of the curriculum and to describe any contributions they may have made.

To determine the impact of the new/updated curriculum on faculty, faculty were asked whether they had revised or developed new courses, whether they had the necessary resources to implement the courses (e.g., appropriate professional development) and to use equipment, whether they had the equipment, software, and resources they needed, and whether the equipment/software is representative of industry.

In addition to questions about their level of involvement, faculty were asked whether they had been kept informed regarding the overall implementation of the project, whether they thought that their role within the project was well defined and whether they were consulted regarding the types of equipment/software needed.

Faculty were also asked a series of questions about the strengths and challenges of the implementation of the project. For example, they were asked if they perceived that funding had a positive impact on students and Iowa Western Community College (IWCC), whether students benefitted from their interactions with advisors, whether the program adequately prepares students, to indicate whether they were supportive of the IT efforts, and whether they thought the program is sustainable. The faculty were asked a series of open-ended questions regarding implementation challenges (e.g. staff turnover) and to share their thoughts about the sustainability of the program, program strengths and challenges, and lessons learned.

## RESULTS

*Faculty Contributions and Training.* Faculty were asked about their role in the CIT program. All of the respondents indicated they were faculty (see Table 1). One respondent indicated that he/she had a Microsoft Office Specialist (MOS) certification (see Tables 2 and 3).

Respondents reported that, over the past 3 1/2 years, they had participated in professional development (see Table 4). Examples of professional development include: Cengage Conference, Working Connections, CISSP training, New Horizons trainings, and SCALE Conference (see Table 5).

Each respondent indicated they were given opportunities to participate or provide input in the development or modification of the CIT curriculum (see Table 6). The respondents provided input in a variety of ways including: modification/review of course curriculum, ability to suggest changes to courses/degree program, and modified program based upon industry/technology changes (see Table 7).

*CIT Curriculum and Classrooms.* Each respondent indicated that they revised and/or aligned their courses/modules for the CIT program, that they needed professional development to teach the courses developed or revised, that they needed professional development to use the equipment/software acquired for the CIT program, and that the equipment/software in their classroom/lab is representative of what is used in industry (see Table 8).

*Communication Regarding the Program.* Faculty indicated they had been kept informed regarding the overall implementation of the program and the majority indicated that their role in the program was well defined, and that they were consulted regarding the types of equipment/software needed to implement or enhance the program (see Table 9).

*Strengths/Challenges Related to Implementation of the Program.* Faculty indicated that the funding provided by the grant has had a positive impact on IWCC and the students, that students benefitted from their interactions with advisors, and that the program adequately prepares students for jobs in the Information Technology (IT) field. Faculty are supportive of the IT efforts at IWCC, and they believe that the CIT program is sustainable after the grant ends (see Table 10).

The project had several turnovers in staff and faculty were asked to describe how these turnovers have affected them. Examples of how faculty were affected include: assignment of additional responsibilities, difficulty in keeping services going without full staff, the loss of the intrusive advisor was difficult, and that the turnover had a seemingly negative impact on the relationship with administration (see Table 11).

Respondents were also asked how IWCC plans to continue or sustain the program after the grant ends. Faculty indicated that they will continue to maintain activities, equipment, and labs; that they will have to pick up extra duties; and that the resources are there for the next 3-5 years (see Table 12).

Faculty were then asked to share their thoughts about the strengths of the CIT program. Examples provided include: faculty and staff are well trained and innovative, faculty are knowledgeable and caring, industry grade equipment, internships, and providing skills to be successful (see Table 13). Faculty were also asked to share their thoughts about any challenges they have experienced. Examples of challenges provided include: administration denying several opportunities for professional development, ever changing technology, finding time to implement additional activities, and turnover of personnel (see Table 14).

Faculty were also asked to share any thoughts or comments about lessons learned with regards to the implementation of the project. Examples of responses include: faculty benefitted from extra training, students benefitted from extra equipment, and teamwork played a tremendous role (see Table 15).

The following tables present the descriptive statistics for each of the questions asked in the faculty survey.

## FACULTY CONTRIBUTIONS AND TRAINING

The following section describes responses regarding faculty certifications and opportunities to participate in professional development and the curriculum update.

**Table 1.**

*What is your role in the CIT program?*

Response	Number
Faculty	5

*n*=5

**Table 2.**

*Do you have any certifications related to the courses you teach?*

Response	Number
Yes	1
No	4

*n*=5

**Table 3.**

*Please list the certification(s) you have.*

Certifications	Number
MOS Certification	1

*n*=1

**Table 4.**

*In the past 3 ½ years, have you participated in any professional development (e.g., workshops, training) opportunities?*

Response	Number
Yes	5
No	0

*n*=5

**Table 5.**

*Please list all professional development opportunities you have participated in.*

Response	Number
Cengage Conference	2
Working Connections	2
CISSP training	1
Continued knowledge through Lynda.com	1
InfoTec	1
Netacad	1
New Horizons trainings	1
SCALE Conference	1

*Note:* Some respondents provided multiple responses.  
*n*=5

**Table 6.**

*Have you been given the opportunities to participate/provide input in the development or modification of the curriculum for the CIT program at IWCC?*

Response	Number
Yes	5
No, but I do not want to participate	0
No, but I would like to participate	0

*n*=5

**Table 7.**

*Please describe your contribution/participation in the development or modification of the curriculum for the CIT program at IWCC.*

Response	Number
Modification/Review of course curriculum	3
Able to suggest changes to courses/new degree program	2
Modified program based upon industry/technology changes	2
Development of new Data Analytics degree	1
Proofer for submission of curriculum	1

*Note:* Some respondents provided multiple responses.

*n=5*



## CIT CURRICULUM AND CLASSROOMS

The following section describes responses regarding the updated curriculum.

**Table 8.**

*The following statements ask you to think about the CIT courses/modules you have taught or developed in the past 3 ½ years.*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I developed new courses/modules for the CIT program	5	1	0	0	1	3
I revised and/or aligned my courses/modules for the CIT program	5	0	0	0	1	4
I needed professional development/training to be able to teach courses developed or revised for the CIT program	5	0	0	0	2	3
I needed professional development/training to use the equipment/software acquired for the CIT program	5	0	0	0	3	2
I have all the equipment, software, and resources I need to teach my courses/modules	5	0	1	0	4	0
The equipment/software in my classroom/lab is representative of what is used in industry	5	0	0	0	2	3

*Note:* Values reflect numbers.

## COMMUNICATION REGARDING THE PROGRAM

The following section describes responses regarding the communication concerning the grant.

**Table 9.**

*Please indicate the extent to which you agree with each of the following statements.*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I have been kept informed regarding the overall implementation of the program funded by the grant (e.g., curriculum development, new equipment, new hires)	5	0	0	0	2	3
My role in the program has been well defined	5	0	0	1	2	2
I was consulted regarding the types of equipment/software needed to implement or enhance the program	5	0	0	1	2	2

*Note:* Values reflect numbers.

## STRENGTHS/CHALLENGES RELATED TO IMPLEMENTATION OF THE PROGRAM

The following section describes responses regarding the strengths and challenges of the CIT program at Iowa Western Community College.

**Table 10.**

*Please indicate the extent to which you agree with each of the following statements regarding the CIT program at IWCC.*

Statements	<i>n</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Overall, program funding provided by the grant has had a positive impact on IWCC	5	0	0	0	0	5
Overall, program funding provided by the grant has had a positive impact on students	5	0	0	0	0	5
Students in my courses/modules benefitted from their interactions with advisors	5	0	0	0	0	5
The CIT program adequately prepares students for jobs in the IT field	5	0	0	0	1	4
I am supportive of IT efforts at my community college	5	0	0	1	1	3
The CIT program is sustainable after the grant ends on September 30, 2017	5	0	0	0	3	2

*Note:* Values reflect numbers.

**Table 11.**

*The CIT program has experienced several staff turnovers (e.g., project/marketing coordinator, intrusive advisor) over the past few years. Have these turnovers had an effect on you and/or the program? Please explain.*

Response	Number
Received additional responsibilities	2
Hard to keep all services going without full staff	1
Internship Coordinator changes not smooth	1
Losing the intrusive advisor was difficult	1
No impact	1
Progress was never at a stand still	1
Turnover seemed to negatively impact relationship with administration	1

*Note:* Some respondents provided multiple responses.

*n*=5

**Table 12.**

*A goal of the U.S. DOL TAACCCT program grant is that the project/program is sustainable after the grant ends. In what way will IWCC continue/sustain CIT programming, personnel, activities, software and equipment after September 30, 2017?*

Response	Number
Continue to maintain activities, equipment, and labs	2
Faculty will have to pick up extra duties	1
Resources are there for the next 3-5 years	1
That is always a question	1

*n*=5

**Table 13.**  
*Please describe the strengths of the CIT program.*

Response	Number
Faculty and staff are well trained and innovative	2
Department is flexible and adapts to change	1
Faculty are knowledgeable and caring	1
Faculty continue their educational pursuits	1
Gives students an excellent foundation	1
Industry grade equipment	1
Internships	1
Provides skills to be successful	1
Strive to keep up with changes in technology	1

*Note:* Some respondents provided multiple responses.  
*n=5*

**Table 14.**  
*Please describe challenges you have experienced working on the CIT program.*

Response	Number
Administration denying several opportunities for professional development	2
Always challenges	1
Ever changing technology	1
Finding time to implement additional activities	1
Trying to accomplish all tasks	1
Trying to fund the right person to answer question	1
Trying to fit everything in	1
Turnover of personnel	1

*Note:* Some respondents provided multiple responses.  
*n=5*

**Table 15.**

*Please share any thoughts or comments about lessons learned about the implementation of the grant project.*

Response	Number
Faculty benefitted from extra training	2
Students benefitted from extra equipment	2
Grant has been an amazing gift	1
Grant wouldn't have happened without overall/ long-term vision	1
Teamwork played a tremendous role	1

*Note:* Some respondents provided multiple responses.  
*n*=3



**Appendix N:**

**Project Team and Faculty Interview Report: Fall 2014**

## METHODOLOGY

The interviews of the Project Team and Faculty of IWCC's ITC<sup>2</sup> (also known as the CIT – Computer Information Technology) program were conducted in Fiscal Year 2, Quarter 1. The interviews took place on October 10, 2014 at IWCC.

### **Project Team**

The Project Team members were asked a series of questions about their roles in the program and about the curriculum. They were asked about how the curriculum was selected and implemented. The Project Team was also asked if they felt the curriculum was appropriate/successful and if there were any plans for changes to the curriculum.

The Project Team members were then asked about how the grant funds helped to improve their Computer Information Technology program. They were asked specific questions about how the program has assisted with student placement in the workforce and internships. Also, they were asked if they were on track to meet their goals as well as what they are doing to recruit/retain more students. Even though the Intrusive Advisor could not make it, the Project Team members were asked about the Intrusive Advisor role including intrusive advisor to student ratio.

The last set of questions asked of the Project Team was about the sustainability of the program. The Project Team was asked about what IWCC is doing to expand the capacity of the program. Lastly, the Project Team was asked about how IWCC is planning to sustain the program once the grant ends in 2017.

### **Faculty**

The faculty members were asked a series of questions about their roles in the program and about the curriculum. They were asked about how the curriculum was selected and implemented. The faculty members were also asked if they felt the curriculum was appropriate/successful and if there were any plans for changes to the curriculum.

The faculty members were then asked about the available career guidance, lessons learned, and sustainability. They were also asked what was going well and what was not going well in the program. For sustainability, the faculty members were asked about the ways IWCC is expanding the capacity of the program and the ways IWCC will sustain the program once the grant ends.



## INTERVIEW REPORT

This report details results of the interviews conducted with the Project Team and faculty members on October 10, 2014, by RISE staff.

### **Project Team**

On October 10, 2014, the Project Team consisted of the project/marketing coordinator, secretary for the board, two co-directors, network administrator, and internship/entrepreneurship coordinator. The intrusive advisor was unavailable.

### ***What is your role in the CIT program?***

The roles of the Project Team in the CIT program varies widely. The roles of the Project Team range from the project coordinator (who is also the marketing coordinator) to the internship coordinator.

### ***How was the curriculum selected?***

The curriculum was selected using sector boards. Local employers are included on the sector boards. The local employers have input into what the students are taught so there is no gap between what the student is taught and what the student needs to know to be employed in the local industry. IWCC aims to teach the more foundational skills with the longer semester length courses. The potential short courses may focus on skills for people who already have the basics.

### ***How is the curriculum implemented?***

The curriculum is being implemented a little off the set time schedule due to the delayed installation of specific pieces of equipment. The process of implementing the curriculum is going fine. IWCC has continued to improve the implementation of the CIT curriculum. Startup Grind has become an integral part of the program. The implementation of the online portion of the CIT program has been slow since the online person was not there.

### ***Do you see this curriculum as appropriate or successful?***

The curriculum was determined using the feedback from local employers. For some of the students, the curriculum is used as an enhancement to the education they already have.

### ***Any plans for changes in the curriculum?***

Improvements are continuing to be made to the curriculum based on past experiences. There are a couple of skills IWCC is looking to possibly incorporate into the curriculum in the coming years. IWCC is looking at possibly including some short courses in the curriculum, but that is just in the beginning stages.

### ***How do the grant funds help to improve your program?***

The grant funds have allowed for the hiring of people who would not normally be a part of the program without the grant money. These positions include the secretary, network coordinator, project/marketing coordinator, and intrusive advisor.

***How has the program assisted with student placement/workforce?***

The program is in the startup phase. The students are taught according to what local industry is looking for skill-wise.

***How has the program assisted with internships?***

Projects for the students have come in due to the entrepreneurial outreach occurring at IWCC. The students can help the small businesses create websites and computer networks, among other items.

***Do you feel that you are on target to meet your goals?***

The Project Team feels that they are on track to meet certain goals but not every goal. The ones they are not on target for are the ones concerning distance learning and switching courses to online learning. The Distance Learning Specialist was supposed to be working on this but only stayed on two months before leaving. Once the position is filled, the work towards these goals will start again. Remaining pieces including the promotional marketing pieces and developing career pathways are on target.

***If not, what do you need to meet those goals and objectives?***

The major item the Project Team needs is time. They need the time to get equipment installed and running. Also, filling the Distance Learning Specialist position will help meet the distance learning goals/objectives. Continued collaboration with different departments and local industry is key to keep moving forward with this program.

***What are you doing to recruit/retain more students?***

Tours of the facilities are given so students can see the equipment being used in the program. The potential students can see that IWCC is up-to-date on all the latest technology. IWCC would like more students to enroll in the CIT program. They would also like to retain the students they have because the local employers need those graduates of the program. IWCC is hoping once all the equipment is in place that recruiting students will be easier because of the students they retain. The students who stay will be able to discuss the program in more detail with potential students, leading to an increase in enrollment. Marketing-wise, posters and brochures are circulating and will continue to be circulated throughout the grant. While it is relatively easy to reach out to the traditional student, IWCC is having difficulty in reaching the non-traditional student and IWCC is looking into ways to reach these non-traditional students. Other ways IWCC is recruiting students is by word of mouth, open houses, continuing education, alternative credit policy, and Career Link.

***What does the intrusive advisor add to the student experience?***

The intrusive advisor checks up on the students, whether the students are hers to advise or not. She had dedicated advisees, but will also talk to other students who are in need of some help. The intrusive advisor talks to the students to determine the best way to help them succeed. The intrusive advisor has been a motivating influence to students and is also the head of the CIT club.

***What is the Intrusive Advisor/Student ratio?***

The intrusive advisor has around 30 dedicated advisees, but does meet with other students in the program as needed. The intrusive advisor covers about 10% of the students in the CIT program.

***What type of career guidance is provided to the students?***

The internship coordinator helps place students who wish to participate in internships in available internships with local employers. The curriculum is based on local employer needs, so when students complete the program, they should be able to find a job with a local employer.

***How is the institution expanding their capacity to deliver the proposed activities?***

New groups/activities are continually added to the program. These include Startup Grind and Bueno Business and Entrepreneurship Organization. IWCC is also building relationships with local industry and the community. These relationships get the word out about the program and what it can do for people and the community.

***How will the institution sustain the proposed activities beyond the grant period?***

IWCC is continuing to add new partners to the program which will help with sustainability after the grant ends. These partners can provide internships and job placements for the students in the CIT program. IWCC would like to continue the groups that have been created as part of the grant and continue to form new groups/clubs that focus on other aspects of Information Technology. Long-term sustainability plans have not been discussed as far as the Project Team is aware of at this time. The grant writer for IWCC is looking at possible grant funding for when the Department of Labor grant money ends in 2017.

---

**Faculty**

On October 10, 2014, the faculty consisted of ones who teach fundamental introduction to computers, fundamentals of desktop support, graphic communications, and non-web programming.

***What is your role in the CIT program?***

Each person present from IWCC was a faculty member in the CIT program. The courses they taught covered a variety of topics.

***How was the curriculum selected?***

The faculty in attendance did not participate in the initial selection of the curriculum. Two of the faculty are new to the department – arrived after the curriculum was selected. The other faculty member was not a part of the selection committee. The directors of the program selected the curriculum. The faculty in attendance follow the direction of the program directors. The faculty in attendance do provide input for the new curriculum and any possible modifications.

***How is the curriculum implemented?***

The curriculum is currently offered in a lecture format. IWCC is working towards offering the CIT program courses online.

***Do you see this curriculum as appropriate or successful?***

The faculty feel that the curriculum is appropriate and successful, but the faculty feel that the curriculum could be more innovative. The grant has allowed opportunities that otherwise would not have been possible.

***Any plans for changes in the curriculum?***

The faculty in attendance are asked about possible modifications to the curriculum and they provide the necessary feedback. The faculty would like to see changes made to gear some of the curriculum towards women and the STEM initiatives.

***What type of career guidance is provided to the students?***

Startup Grind could be considered a form of career guidance. People from local industry come and talk to the students about their businesses and what a typical day looks like at their company. Students do appear to be excited about these Startup Grind opportunities. The internship coordinator has provided the connections so students can get internships with local employers that could possibly lead to employment. The students are also learning soft skills, like being on time.

***Now that the CIT program is up and running, what is going well or not so well?***

The exposure for the students to local industry is a major plus for this program. The fact that local businesses can come in for help from the students. The students are creating websites and networks for local businesses, providing great exposure to local industry for the student and IWCC. The IT activity club has seen a major boost since the start of the grant. The intrusive advisor has also worked really well for the program. The intrusive advisor has helped students who are really struggling with the classes. The ability to provide hands-on training to the students with the CIT grant money has been a great opportunity for the students. There has been an issue with getting students involved in some of the activities that are outside the normal classroom time frame.

***What lessons have you learned?***

The faculty in attendance were not a part of the planning of the grant, and they feel that maybe the faculty should have been. Some aspects are just now getting worked out. The faculty feel that the project jumped too far ahead and now they are having to backtrack to get some of the preliminary aspects figured out. Communicating on a frequent basis has been key to keeping the grant running smoothly, according to the faculty in attendance.

***What do you need to move forward?***

The faculty in attendance feel that the online development faculty position needs to be filled to continue to move forward in the grant.

***How is the institution expanding their capacity to deliver the proposed activities?***

The hiring of the internship coordinator, project coordinator, and intrusive advisor have helped IWCC expand their capacity. IWCC has let the faculty complete the tasks they need to for the program and has allowed the faculty to expand activities as needed. The shared workspace has also helped with the expansion.

***How will the institution sustain the proposed activities beyond the grant period?***

The faculty in attendance feel that IWCC will sustain and maintain the program after the grant is complete. However, the faculty are unsure how IWCC will sustain the program after the grant ends since the program is in the beginning stages.



**Appendix O:**

**ITC<sup>2</sup> Project Team and Faculty Interview Report:  
Fall 2016**

## METHODOLOGY

External evaluators from Research Institute for Studies in Education (RISE) were on site at Iowa Western Community College (IWCC) for a half-day meeting with the ITC<sup>2</sup> Project staff and faculty (see Table 1) in September 2016 (Fiscal Year 3, Quarter 4). The evaluation team conducted three interviews with the project’s co-directors, staff, and faculty to discuss five primary topics focused on the accomplishments to date (1) whether goals/objectives were completed in the time expected, (2) what challenges occurred, (3) what barriers made it hard to accomplish tasks, (4) what is needed to continue project tasks, and (5) efforts in sustaining the Computer Information Technology (CIT) program.

Key Stakeholders	Name	Role
<b>ITC<sup>2</sup> Project Staff</b>	William Barrett	PI
	John Magill	Co-PI
	Kara Schwee	Project/Marketing Coordinator
	Terry Bailey	Internship Coordinator
<b>CIT Faculty</b>	Jared Bernard	Instructor
	Melanie Butterbaugh	Instructor
	Connie Jones	Instructor
	Christie Keller	Instructor

## INTERVIEW REPORT

The following report presents a summary of the interviews conducted with the ITC<sup>2</sup> Project staff and faculty.

### *Accomplishments and Challenges*

*Accomplishments.* William Barrett and John Magill have been instrumental in the development and implementation of the program. Faculty noted that neither William Barrett nor John Magill receive enough praise for everything that they have done and accomplished.

Various grant related accomplishments were touted by ITC<sup>2</sup> directors, faculty, and project staff. Over the past year, the CIT program has experienced an increase in enrollment resulting in more course sections added to accommodate the increased number of students. They have also been successful in finding internships that provide students with real-world experience as well as exposure to different organizations. Other accomplishments include increased access for students interested in pursuing a career in Information Technology (IT) through the enhancements/ changes made to their course delivery methods (e.g., online courses and recorded videos have been developed and made available to students) and through collaboration between ITC<sup>2</sup> Project faculty/staff and Continuing and Career Education faculty/staff in helping students acquire CIT

credits. In particular, faculty reported that they are excited about the continuing education classes and opportunities made available to students. Other accomplishments touted include equipment purchases (e.g., cloud and virtual infrastructure, servers, thin clients), system installations (e.g., software including Adobe Creative Cloud and VMware), and engagement in marketing (e.g., social media, videos).

Overall, students, staff, and faculty have benefitted from the ITC<sup>2</sup> Project and the opportunities the grant has afforded the program. In addition to learning from skilled faculty with familiarity and experience in the latest technologies, students have benefitted from having access to equipment and software (purchased through the grant) that meet industry standards. The CIT program has also been enhanced through its addition of online courses and the ability to securely remote access the system from home. Students also benefitted from assistance in preparing for jobs including: taking professional profile photos, writing cover letters, attending resume workshops, taking part in mock interviews, attending presentations related to job seeking, and identifying and applying for internships. Internships procured through the program often turn into job offers for the students and some students that have gone through the program have been promoted at work because of their advanced training. Students have also been given opportunities to work on certifications and have been able, in certain instances, to receive discounts allowing them to complete the certifications.

Faculty have also been positively impacted by the opportunities afforded through the ITC<sup>2</sup> Project. Faculty have incorporated grant goals and objectives into their everyday activities to the extent that they can no longer differentiate between grant related and non-grant related work. Faculty keep up to date on the latest IT trends through increased opportunities to take part in professional development training (e.g., New Horizons training) and have had greater opportunities to interact and network with students and the community.

*Challenges.* While Project faculty and staff have started to see the benefits of the increased marketing (e.g., increase in number of students enrolled and number of classes offered), the program has also been impacted by several staff turnovers that include the Project/marketing coordinator, the intrusive advisor, and the internship coordinator. The change in project/marketing coordinator caused the Project to lose some momentum, however, this was quickly turned around when job of the Project/marketing coordinator was restructured and a new Project/marketing coordinator was hired. The faculty reported that losing the intrusive advisor was a big loss, especially after it was determined that renewed attempts to fill the position would be dropped. The changes in the internship coordinator meant that some students would have a difficult time or be unable to procure internships.

Project faculty and staff identified other challenges/issues:

- *Sustainability.* Faculty and staff interviewed indicated that there is some concern that they will not have enough funding nor faculty/staff with sufficient training to continue the upkeep of the equipment and licenses purchased. The grant provided the opportunity to purchase equipment and software that meet industry standards, however, when the



equipment/software nears its end-of-life it will become cost prohibitive to update and/or replace.

- *Filling Internship Opportunities*. The program has been so successful in identifying internship opportunities for students that they don't have enough students to fill all the internships that are available.
- *Recruitment and Retention of Women in IT*. A goal of the project is to increase the number of women entering the IT field. Project staff reported that they have been challenged with students that do not have the confidence in their IT abilities and with trying to break stereotypes about women and IT.
- Uncertainty of whether the faculty/instructor position funded by the grant would continue once the grant ends.

### ***Continuation of Project Tasks***

*Marketing*. Over the past year, the Project/marketing coordinator has focused on marketing of the program to increase the visibility of the CIT department. Marketing efforts have included working with external marketing firms to develop some marketing pieces; development of radio commercials, YouTube videos, billboards, and placing Facebook ads. Project staff will continue to market the program throughout the following year.

*Recruitment of Underrepresented Students*. Efforts to recruit women and other underrepresented groups continues to take place. In particular, some of the marketing efforts promoting the program target women and underrepresented groups. Project staff indicated that they are working to learn about different strategies that can be used to recruit women and students from underrepresented groups.

*Internship Opportunities and Career Fairs*. The program currently offers two different types of internship opportunities for the CIT students. One program is designed to assist small businesses, start-up companies, and non-profits, while the other program is primarily for internships students need to complete for class credit. Both are on-going activities with internship coordinator actively working to identifying additional internship opportunities for students.

Project staff will continue to host/conduct career fairs as needed to assist students as they pursue careers in IT.

*Development and Implementation of Online Courses*. Development and implementation of online courses for students continues to be a goal of the Project. Offering online courses serves a couple of functions: (a) provides access to students even when physical classroom space is limited or unavailable, and (b) provides access to non-traditional students that require greater flexibility in their schedules. Program faculty teach combinations of online and face-to-face courses. Faculty offering online courses received extra training (including use of specialized software for online presentations such as Microsoft/Office Mix) in preparation for their online courses, are invited to participate in the Working Connections conferences, and are provided

additional support as needed. Program faculty will continue to monitor online courses to ensure that they remain high quality.

*Weekend and Evening Courses.* The CIT program will implement weekend and evening courses that will provide greater access to students that work or need greater flexibility. For example, a Weekend Certificate Program (e.g., Web Design) will be offered on Saturdays.

*Professional Development Training and Conferences.* Faculty and staff will continue to take advantage of professional development training opportunities that will help them become leading experts in their field. A “Working Connections” conference will be hosted in June 2017.

### ***Sustainability Efforts***

Sustainability of the program is very important to IWCC CIT faculty and staff. The field of IT is one that is continuously moving and evolving and as the field grows, the need to update and/or upgrade equipment and software also grows. As such, sustainability becomes a challenge. ITC<sup>2</sup> faculty and staff have engaged in various efforts to enhance as well as sustain the program including:

- Actively seeking other grant/funding opportunities to continue the currently funded Project. Project faculty and staff report that outreach and marketing efforts for the CIT program would not have been possible without the grant.
- Securing long-term renewals for licensures rather than relying on short-term renewals as they have done in the past.
- Transitioning of “The Port” (shared-use space), set up with grant funds, to the Small Business Development Center, to sustain the shared-use space and continue supporting small business organizations throughout the area.
- Development and implementation of two new programs:
  - Cyber Security
  - Data Analytics



**Appendix P:**

**Project Team Interview Report: Spring 2017**

## METHODOLOGY

External evaluators from Research Institute for Studies in Education (RISE) were on site at Iowa Western Community College (IWCC) for a half-day meeting with the ITC<sup>2</sup> Project directors and Project staff (see Table 1) in May 2017 (Fiscal Year 4, Quarter 3). The evaluation team conducted three interviews with the Project's directors and staff to discuss five primary topics focused on the accomplishments to date (1) whether goals/objectives were completed in the time expected, (2) what challenges occurred, (3) what barriers made it hard to accomplish tasks, (4) what is needed to continue Project tasks, and (5) efforts in sustaining the program.

Name	Role
William Barrett	PI and Faculty
John Magill	Co-PI and Faculty
Kara Schwee	Project/Marketing Coordinator
Terry Bailey	Internship Coordinator
LuAnn Smith	Project Secretary

## INTERVIEW REPORT

The following report presents a summary of the interviews conducted with the ITC<sup>2</sup> Project directors and staff.

### *Project Accomplishments*

*Overall Accomplishments.* In general, Project faculty and staff indicated that the Project has been well worth the efforts exerted to see it through. The Project has been a great benefit to not only students, but to the Computer Information Technology (CIT) department, IWCC, and the surrounding community. For example, the ITC<sup>2</sup> Project has allowed the department to:

- purchase new equipment (e.g., servers, virtual desktop infrastructure, laptops) and update and enhance their technology (e.g. simulation of cloud environment)
- purchase academic licenses for key pieces of software
- add more course sections, develop and implement online courses, videos (e.g. webcasts) and weekend programming
- develop and implement of two new programs: Cyber Security and Data Analytics
- train faculty and staff and host several professional development conferences (e.g., Women in IT Conference, Entrepreneurial Conference, Working Connections Conference).

The IWCC CIT program also received equipment (e.g., servers, racks, and entire systems) from Yahoo, Google, Farm Credit, Atlantic Bottling Company, and others to enhance the ITC<sup>2</sup> program. In addition, Project faculty and staff were able to leverage the grant to provide additional opportunities to students via career fairs, increased engagement with the community and business partners that included the expansion of an advisory board, workforce development, and an enhanced relationship with the University of Nebraska – Omaha (UNO) to assist with the ITC<sup>2</sup> Cyber Defense Competition, facilitate student transfers, and provide scholarship opportunities for students.

*Impact on Students.* Students have been positively impacted by the ITC<sup>2</sup> Project. Providing students with “real world” experiences helps students to develop the knowledge and higher level skills needed for employment in today’s Information Technology (IT) field. These experiences allow students to gain confidence in their skills while making them more desirable to employers. These real-world experiences are made possible because of the purchase of upgraded equipment, access to learn on the new equipment, revised curriculum, online learning opportunities, opportunities afforded through internship and Enter IT opportunities secured through the ITC<sup>2</sup> Project and opportunities to interact with employer partners.

*Impact on Faculty.* Faculty have benefitted from the upgrades/updates made to classrooms and equipment. These upgrades/updates allow faculty to expose students to the leading technology while giving them real world experiences. Faculty have continued to remain current and up-to-date on the latest technology through their participation in various professional development and training opportunities funded by the grant. They have participated in Working Connections conferences and have been actively involved in updating and revising the curriculum, identifying program weaknesses and proving input on needed improvements. Permissions to access the departmental servers/systems were changed to allow faculty access to the systems so that they can deal with problems or make changes as needed without having to go through IT services. This change was implemented for faculty because they all have the appropriate training/experience needed to access the servers/network and to facilitate teaching and student learning. Other impacts include hiring an additional faculty member and increased interactions with students.

*Impact on the CIT Department and on Iowa Western Community College.* The Project has had been beneficial for the CIT department and IWCC overall. Project faculty and staff reported that IWCC administrators have a favorable view towards the Project and the work that has been completed to date. The CIT program is viewed as a quality program producing quality students. It is often showcased/highlighted by administrators when conducting campus tours. Examples of positive impact include:

- IWCC was able to leverage the ITC<sup>2</sup> Project to obtain addition funding from Google and other companies (e.g. Woodmen Life) to enhance their infrastructure and help students with scholarships, internships, and Enter IT Projects.

- The Project has helped to increase the CIT department's presence at IWCC through relationships formed/developed with other IWCC departments (e.g., Continuing Education, IT).
- The Project has helped increase awareness of the CIT department in the community and has provided opportunities for Project faculty and staff to form/develop relationships with the community and local business and industry leaders.
- Increased awareness of the Project has resulted from marketing efforts such as videos, Facebook, YouTube, TedTalks, and career fairs.
- The Project has impacted the college through the expansion of CIT offerings, increased student enrollment and retention, and more tuition dollars resulting from increase in students.
- The Project has also increased its marketing to non-traditional students which in turn is expected to benefit by taking a more global approach to IT moving forward.

*Employer Partners.* The Project has a direct impact on employer partners through the increased availability of highly skilled students needed in the workforce. The relationship between the CIT department and employer partners is mutually beneficial. Employer partners sit on advisory committees and sector boards providing input that helps to ensure that students get an experience that meet industry standards (e.g., input on new/revised curriculum, purchase of equipment and software) while increasing the workforce with highly skilled workers. Employer partners provide students with internship opportunities that often lead to offers of employment. They provide Enter IT Projects for students to work on and complete and they often participate in career fairs, review resumes, conduct mock interviews, and conduct tours of their respective businesses.

In addition, the relationships developed with employer partners has helped to foster favorable views of the CIT department among employer partners and the community at large.

### ***Challenges***

The Project has succeeded in meeting its goals and objectives despite being faced with several turnovers in key staff (e.g., Project coordinator, intrusive advisor, internship coordinator) over the past four years. Each turnover has affected the Project in different ways, for example, the Project coordinator was let go by upper administration rather than the PIs that resulted in some delays in accomplishing certain tasks. In response, the position was somewhat restructured and an emphasis was placed on marketing when the new Project coordinator was hired. The loss of the intrusive advisor was felt hard by several faculty, however, a decision was made to eliminate the position after it turned over for the second time. Other challenges include:

- Overall changes in college administrators and their unfamiliarity with the Project. There have been at least three different deans since the beginning of the Project resulting in some challenges. These include possible rifts that (1) may have been created between

administrators and ITC<sup>2</sup> faculty and staff when the Project coordinator was let go by administration and (2) are related to administrators making decisions about how and whether money is spent on professional development/training.

- Trying to strike a balance between faculty wanting to take advantage of training/professional development opportunities and finding time to do so without taking away from their regular duties.
- The enrollment for women has been relatively flat or slightly lower than what it was at the start of the program despite efforts made by the ITC<sup>2</sup> Project faculty and staff. This lack of an upward trend for women in the program suggests that barriers still exist and that there is a need to overcome them so that women can pursue careers in IT.

### ***Sustainability Efforts***

*Project Faculty and Staff.* Current Project faculty will continue to work in the CIT department at IWCC and will continue to use their experience and knowledge that resulted from their work on the Project. To date, the internship coordinator and Project secretary will continue in their current positions once the grant ends in September 2017. The internship coordinator will be paid through a different grant and the Project secretary's position will be paid for through the Small Business Development Center (i.e., formerly "the Port"). The Project coordinator left the position just prior to the end of the grant and will not be filled again.

*Continuation of Project.* Overall, the program, including equipment and software, is expected to be sustainable for the next four or so years. At the end of the four to five years, academic licensing will need to be renewed and equipment will more than likely need to be updated. It is anticipated that some of the equipment will become outdated enough to break and will need to be replaced rather than updated. The grant allowed the CIT department to purchase over \$700,000 worth of equipment/software and will therefore become increasingly difficult to upgrade and/or replace given the cost.

Project directors reported that they are hopeful that employer partners will continue to step in to help sustain the program through donations (e.g., equipment, software), grants (e.g., scholarships), and assistance for students (e.g., participation in career fairs, offering internships). While implementation of the Project has been intense and has involved considerable effort, Project directors are open to seeking grants and other funding opportunities that will continue what has already been implemented, continue to develop and grow as the field grows, and to continue to be accessible for students wishing to pursue a career in IT.