Western Iowa Tech Community College

Western Iowa Tech Mission

As a comprehensive community college, our mission is to provide quality education and to economically enhance the communities we serve. To accomplish the mission, the College will:

- Provide post-secondary occupational education leading to diplomas, certificates, and the Associate of Applied Science degree.
- Provide post-secondary general and transfer education leading to the Associate of Arts or Associate of Science degree.
- Provide basic education for the improvement of academic skills and/or leading to a High School Equivalency Diploma (HSED).
- Provide economic development programs and assistance.
- Provide lifelong community and continuing education.
- Develop partnerships with educational institutions, businesses, governmental agencies, and communities.
- Develop programs for participation in the global economy.
- Provide student development services to improve the academic success of our diverse student population.
- Provide opportunities for our students to participate in leadership development and in community, social, and recreational activities.
- Maintain a learning and working environment that is safe, clean, and comfortable.

Western Iowa Tech's new Graphic Design classrooms allow the instructor to share content easily and enable student collaboration.

Vision

"It was our goal to give students the technology they needed to be successful in the classroom and make that technology available to them when they graduated so they had the tools needed to be successful in the workforce." Dr. Terry Murrell, President

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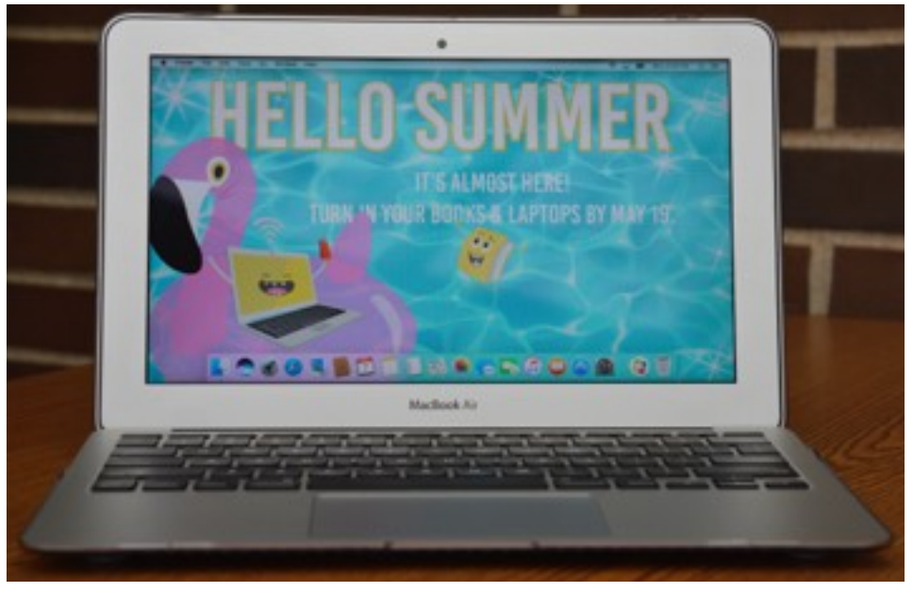
Vision

Historically, community colleges, including Western Iowa Tech Community College, have focused on enrollment. In recent years, that focus has shifted to include completion, as the college recognized the importance of surrounding our students with services and strategies that would lead to student success. It became evident that in order for all students to be successful, the College needed to invest in technology that would eliminate the digital divide. In order to accomplish this task, College leaders created a plan to place technology into the hands of each student.

Role of key stakeholders

There were several different types of stakeholders involved in the selection and implementation of technology.

- 1200 **students** responded to a technology survey in which they selected the form of technology they needed to be successful. The overwhelming majority said they needed a MacBook portable computer or similar laptop.
- The **President's leadership team** began to work closely with Apple to create a plan whereby all students would be given a MacBook within one year's time.
- The **Faculty** began intensive training in order to prepare themselves to incorporate the Apple technology into all areas of teaching and learning.
- Other **College staff** were heavily involved in the planning and implementation of the one-to-one project from rollout to training and support, to writing processes and creating evaluation tools.
- **Community members and employers** gave feedback about the need for mobile technology and worker access to technology.



Messages delivered on MacBook portable computers keep students connected.

Project Goals

- Place technology in every student's hand.
- Enhance learning opportunities for every student.
- Incorporate online learning tools for every class.
- Bridge the economic digital divide.
- Impact enrollment and completion.
- Prepare students for the workforce.
- Ensure all stakeholders, students, staff, and faculty are using the same tools and technology to develop better communication and foster collaboration.

Sustainability Plans

The College has created plans to sustain the project financially through the use of student fees.

Ongoing faculty training will be sustained through a grant and college support.

IT support for student and faculty will be ongoing through the use of student tech fees and college support.

The Comet Learning Center (CLC)

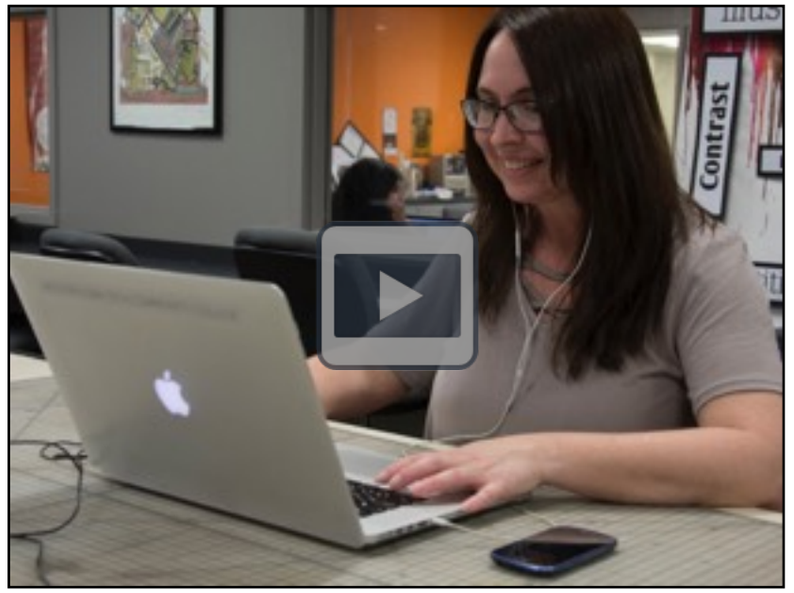
Learning

"They are working on real world projects in a real-world environment, and working to better themselves both personally and professionally." Chris Mansfield, WITCC Instructor, Audio Engineering & Video and Media Production

Student learning

"During their time at the College, students have 24-hour access to this technology, which has an immediate, relevant, and meaningful impact on them. This type of access allows the students to act on creative instinct when and wherever that instinct strikes. Many students have mentioned that in today's environment of trying to find the work/school balance, having access to the MacBook enables students to successfully do both, as they are not fully tied to an old-fashioned computer lab and its restrictive hours." Chris Mansfield, Audio Engineering & Video and Media Production.

"I use the iPad (and AirPlay) in the classroom to make audio recordings of my lectures, project the textbook so the students can see any important images, and use 3D anatomy apps that help students learn muscles, bones, and brain structures. I have used the iPad to create 448 videos to help students learn (and review) every key concept that I teach across my classes. This has been especially helpful for visual learners and learners that like to review concepts multiple times. My online and hybrid students are especially thankful for these resources." Frank O'Neil, science instructor



Learning in a mobile world.

"Technology for some may be menacing and for others it can certainly serve as a tool that can catapult learning to a completely new level. I have seen the impact that technology has had for my students and it has been incredible. Students enrolled in classes are provided with a MacBook portable computer that has allowed us to infuse technology in the classroom. What this has done is create opportunities for our students that before were a little more out of their reach.

Most of my classes require students to complete some assignments using an online lab. My students know that they need to have access to a computer in order to complete these assignments. Because we issue them a MacBook portable computer, they do

not have to be on campus or even at home to complete their homework. As long as they are able to access the Internet, they are able to access their work. In addition, the students also have access to their textbooks at all times because they are available electronically. The resources that they have at their fingertips are many. Effective and timely communication is possible between my students and me because they have a computer available at all times. The reality is that most students today prefer to communicate using some form of electronic communication. Email communication is possible with all students because they all are able to access it using their MacBook portable computers. " Sandra Mueller, business instructor.

According to our students and faculty, some of the highlights of the technology integration include:

- Students use critical thinking to discern valid sources.
- Students can answer their own questions easily and quickly.
- Instructors can give immediate feedback.
- Students and instructors have access to numerous apps, including note-taking, organizational, translation, bibliography apps, and more.
- Students are able to save money by purchasing their textbooks online.

"When students are forced to use technology in real world issues their engagement changes. Everything they want to know they look up. Students are naturally inquisitive. If students are not engaged they will play on devices. It's our goal to redirect that play to learning." Kendra Bergenske, speech instructor

Student comments include:

- "I don't know how I could have done this without the laptop."
- "I am so happy that I no longer have to miss class when I have a sick child."
- "I had never used a Mac before. I love it. It is so fast."

The decision to issue students MacBook portable computers was based on the resources they needed in their program of study. For example, the Audio Engineering program's students were issued MacBook Pros to support the higher processing capabilities required by the software.

The WIT Culinary Arts kitchen uses iPad devices to display recipes.

Teaching

“I have seen how having access to Apple technology has helped to make me a better instructor.“ Sandra Mueller, business instructor

Professional learning

“Western Iowa Tech Community College began offering hybrid Master Instructor Level I classes in the Spring of 2015. The classes were first offered to our full-time instructors and later offered to adjunct instructors. Over the next two years, Master Instructor Level II and Level III were added.

Master instructor classes include the following:

- MacBook Tips and Tricks
- Ideas of how to the use the MacBook computer in the classroom
- How to use the campus and classroom technology including Apple AirPlay
- Using our learning management system (LMS)
- Course planning
- Classroom management
- Evaluation of student learning and teaching methods
- Clear communication
- Diversity considerations
- Formative and summative assessments
- Grading techniques
- Active learning methods
- Classroom management
- Faculty peer coaching

The Academic Center for Excellence (ACE) is the hub for on-going training throughout the year. We offer large group, small group and one-on-one assistance using the MacBook and other classroom technology. We also coordinate and offer a 3- hour New Faculty Orientation session for new adjunct and full-time instructors.” Dr. Renee Romig, ACE

Dr. Renee Romig leading an instruction session in ACE.

Instructional design

“Because of Apple technology, I am able to use my time more efficiently and be more accessible to my

students. I use materials and tools that might have been difficult to access or incorporate in the recent past. I share those resources and content with my students. I strive to keep thinking of creative ways to reach my students. My students expect that as an instructor, I am going to continue to challenge them and provide them with learning experiences that are applicable to what is going on in the industry today. In order to continue to effectively do that, I continuously challenge myself to be better. Each student learns differently and having so many resources available has made it possible to use different methods to connect with different types of learners. The technological tools at our disposal have made that possible. Technology is not standing still and therefore, as instructors, we cannot allow ourselves to be complacent. Our students expect and deserve more. I am fortunate to work for an organization where learning is part of our culture. I am responsible for teaching those who will enter tomorrow's workforce." Sandra Mueller, business instructor.

"In my classroom we rely heavily on Apple technology, including Apple TV, AirPlay, iPad devices, and MacBook portable computers. I teach early childhood courses, and the students are learning the same technology they will use in the field. There is a layer of dependability when accessing Apple apps because they have been properly vetted for use in Apple hardware and operating systems. Because they all have Apple iPad devices, I feel confident about what I am using; everything is consistent. I don't print stacks of presentations and handouts for the students. I just share things electronically. There are so many helpful and free apps for those who are working with children. My students have learned how to review these apps and find the very best tools for their learners." Jennifer Weber, Early Childhood coordinator.

Jennifer Weber teaches Early Childhood Development students how to engage children in learning using iPad devices.

Environment

"As a result of placing technology in students' hands, we have been able to redesign our developmental mathematics courses to include an interactive mathematics software program. Students work independently from home and with a facilitator in the College's Comet Learning Center." Dr. Juline Albert, Vice President of Learning

The definition of a learning environment has changed from the traditional face-to-face classroom model to new methods never dreamed of by previous generations. The exponential evolution of technology has been a driving factor of this change.

Students live mobile lives and expect mobility in the education. Employers expect a new level of sophistication from our students as they move from education to the workforce. Student success mandates that we prepare them for this paradigm shift.

Challenges to a vision of mobility are enormous. Technology was the easy part – cultural change was a growth opportunity that Western Iowa Tech had to embrace. But, as with most growth, there were challenges to overcome and plans to execute.

Learning spaces

Western Iowa Tech Community College strives to develop the most effective physical and virtual learning spaces for students.

Anyplace in the college can be a learning space in our mobile environment. Students can plug portable computers into large monitors located in collaborative spaces throughout the college. Wireless access points are strategically placed for maximum coverage and signal strength. This technology creates an environment for shared learning.

Standardized classrooms enables instructors to concentrate on teaching instead of adapting to different technologies.

Academic Center for Excellence (ACE)

Computer labs have be repurposed to support mobile learning. The distribution of MacBook portable computers to students has reduced the need for desktop computers in lab areas.

Infrastructure design

Physical classrooms have been and continue to be remodeled to free instructors from the podium. Learning spaces are designed to encompass the entire room, not just the front. The use of screens mounted on carts paired to Mac Mini computers and students' use of MacBook porable computers has changed the way we look at electrical and LAN connectivity. Rooms in Sioux City, Denison, and Cherokee campuses are interconnected as virtual classrooms to make classes available to more students at a cost-savings to the college.

The ACE provides full-time and adjunct faculty with a place to share ideas and receive training in new instructional methods. The Center is designed to be configured to meet various training requirements.

Room A222 in the Robert H. Kiser Building is an experimental classroom in which instructors have the freedom the reconfigure the learning space.

Our new HelpDesk is located closer to Admissions and Recruitment offices. It was designed to offer students, faculty, and staff a convenient comfortable place for support of their technology. Our customers find friendly, well-trained technicians eager to help with hardware and software issues.

In addition to permanent spaces, the distribution and support of the one-to-one MacBook project has required spaces, such as our college's library, to be adapted as a distribution center the first week of fall term. Other rooms are brought online as temporary technology learning spaces as the need arises.

Fall 2015 rollout in the library

IT management has proactively addressed the increasing demand for bandwidth on and between the college's 3 main campuses. In 2011 the campus bandwidth was 20 mb. In 2017 the bandwidth is 5.4 gb. This has accommodated the increased use of online video content and video conferencing in the classroom and the proliferation of personal devices.

Communication

Not only do students need to connect to college, the college needs to connect to students. After careful examination of options and experimentation, the college selected Casper Suites' JAMF software to connect to the portable computers.

This aids in supporting the devices and is a conduit for distributing important messages to students.

Student engagement is a WITCC priority when designing classrooms. Screen configuration is developed to suit the room geography and instructional methods. The technology enhances the communication of content. One example is the Culinary Arts classroom. Four screens can display video separately from any of the cameras aimed at cooking and food preparation surfaces, at the entire instruction area, or at the students. In addition, output from an iMac computer can be displayed. Each video source is selected using a touch panel.

Cameras on screen in WITCC Culinary classroom

The Journey (Move mouse over list to activate scroll.)

2010

- Novell to Windows

2011

- Managed Wireless Campus Wide
- Planned Netbook Pilot for Automotive
- Issued iPad devicess to WIT Board of Directors to help them understand the impact of mobility
- Issued iPad devices to all Full Time Faculty
- Increased Internet bandwidth from 20 mb to 100 mb

2012

- Wrote Title III Grant to improve developmental education through student engagement and support with mobility by updating all classroom technology.
- Piloted iPad devices in the Classroom for Early Childhood Development
- Piloted 15" Mac Book Pro's to Graphic Design, Web Design and Social Media; Cinematography, Photography, Audio Engineering. (first year portable computers were purchased by the students)
- Studied wireless use on campus
- Increased Internet bandwidth from 100 mb to 200 mb and added a second redundant Internet Service Provider

2013

- Awarded largest Title III Grant in history, received $5 million dollars over 5 years.
- Purchased and assembled 20 Classroom TV carts
- Purchased and distributed 50 high definition projectors
- Purchased and distributed 50 Apple TV's
- Piloted iPad devices in the Classroom for Early Childhood Development
- Piloted 15" Mac Book Pro's to Graphic Design, Web Design and Social Media; Cinematography, Photography, Audio Engineering. (2nd year portable computers were issue to the students as WIT owned portable computers)
  Moved our Inventory to SysAid

Results

“I am so happy that I no longer have to miss class when I have a sick child!” Student

One-to-one technology has helped bridge the economic digital divide that many of our lower income students had experienced in the past. All students now have access to the same level of hardware and software. Integration of the new technology is now a part of new faculty orientation. Instructor development (Master-Instructor training) was completed by all full-time faculty and now is being offered to all adjunct faculty. Instructors are using the same technology as students which has lessened confusion and fostered cooperation.

Student testimonials have been overwhelmingly positive.

Outcomes realized include:

1. Printing was reduced from 2.1 million pages to 1.6 million pages in the first year, with the emphasis on further decreases.
2. Digital books are being offered to students for purchase.
3. Several instructors have developed Apple iBook textbooks. These books were then distributed at no charge to students.
4. In a Cultural Perspectives class, when students realized their textbook could be changed so easily, they began to contribute and collaborate on a new, improved version of the book.
5. Integration technology into new faculty orientation
6. Pre-levels of instructor development (called Master-Instructor training)
7. Topics identified are more detailed in different areas to focus on what works best for each faculty member and their needs.
8. 100% full-time faculty involvement to create Master-Instructor
9. Required of all instructors who wish to check out a MacBook
10. Technology is available for any instructor who meets these conditions.
11. Completion increased 27% during the first 2 years and graduations have seen record amounts in a period of flat and falling enrollment, but with only 2 years of data, it’s hard to associate results in retention, completion and enrollment with the technology initiative alone because the entire college is focused on completion.

All of these outcomes result in cost-savings and instant access. This is possible due to the one-to-one Apple technology platform.

Course Level Retention for Face-to-face Courses

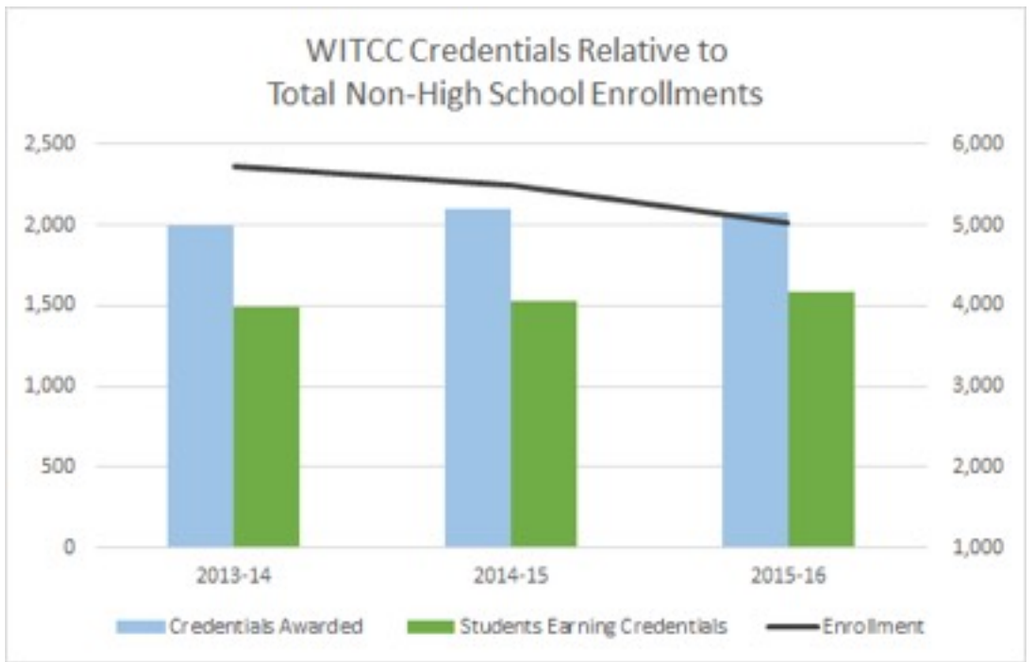
	Retention	Success
2014	90.48%	72.20%
2015	90.80%	72.89%
2016	92.05%	76.94%

Retention: Students who complete course.
Success: Students with a final grade of C or better.

Research practices

Outcomes from a 2012 iPad pilot program resulted in mixed reviews:

- Early Childhood Education classes incorporated iPad devices and are still using them five years later;



- Faculty were able to use iPad devices to draw things such as math equations;
- Faculty created videos with ease.

On the other hand…

- Students struggled with navigation;
- Printing was difficult; and,
- Instructors struggled to connect the iPad with other classroom technology.

Outcomes from a 2013 MacBook Pro pilot showed portable computers to be more adaptable to students' needs.

Staff and Faculty

The Western Iowa Tech IT Department manages the distribution and maintenance of the MacBook assets. The college's SysAid ITSM solution allows the institution to monitor the availability of the hardware and record required repairs and maintenance. Reports created in SysAid are used to analyze the frequency and severity of issues related to the systems and adjust procedures to server our students more-effectively.

The College's Completion Initiative grant monitoring tracks training received by full-time and adjunct faculty. In the ACE post-workshop evaluation form, instructors are offered the opportunity provide additional training topics.

The Business Office analyzes the monetary aspects of the program to ensure students remain in good financial standing. Many of our students are balancing very tight budgets in order to attend college. With diligence, we can help them make the most of their resources.

Student and faculty testimonials are solicited regularly. Based on the analysis of the results, improvements to the program are executed every semester.

A graduate student is writing a dissertation on the impact of technology on student success based on CLC, Comet Learning Center, data.

The new WITCC HelpDesk is optimized to support mobile technology.

Support

Strategic infrastructure and technology planning has allowed the College to staff the IT HelpDesk with fewer technicians while supporting and increased technology. Enabling students to set up their own MacBook portable computer helps build confidence and has reduced the setup time for technicians to as low as 5 minutes.

Support Timeline (Move mouse over list to activate scroll.)

- August 2010 - Supporting 1500 Windows PCs and 400 iMacs - IT staffed at 26.
- August 2016 - Supporting 1000 Windows PCs, 100 iMacs, 200 Mac Minis and 3000 MacBook portable computers - IT staffed at 18.
- Average annual support for student facing windows PC - 4.5 hours
- Average annual support for student MacBook portable computers 3 minutes
- Student tech fee August 2010 - $9.00 per credit hour supported 1500 PCs, network, servers & 20 MB Internet - no wireless.
- Student tech fee August 2015 - $24.00 per credit hour supports 4300 computers, network, servers, wireless infrastructure, and 2.2 GB Internet.
- Student tech fee August 2017 - $21.00 per credit hour supports over 5500 computers, network, servers, wireless infrastructure, and 5.4 GB Internet.
- Plans to change from MacBook Air to MacBook 12” for base and upgrading to the 15” MacBook Pro with touch bar in the Spring of 2018.
- Most Windows desktops on campus are being replaced with either MacBook portable computers or HP all-in-ones except for specialty labs like video game design.

Contribution and Credits

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