National Convergence Technology Center

- A National Science Foundation Center based in Frisco, TX at Collin College
- Created in 2004 to revitalize IT education in the North Texas region
- Became National in 2012
- Business Led
National Convergence Technology Center (CTC) partners

Collin College

El Centro College

Florida State College at Jacksonville

Fox Valley Technical College

Georgia Southern University

UNT (University of North Texas)
IT and Cyber-related NSF Centers

• Formed a consortium to leverage their expertise to submit a proposal to the United States Department of Labor for a $20 million consortium to improve Information Technology Offerings

• 7 colleges, 6 states

• 4 IT Specialty areas covered
  – Programming, database, business intelligence (including mobile app development)
  – Network infrastructure (Convergence and what others sometime call ICT)
  – Cyber-security
  – Geospatial technologies
IT and Cyber-related NSF Centers

- CSSIA
- BATEC
- CTC
- GEO TECH
- NISGTC

Topics:
- IT and Communication Technology
- Cyber Security
- Mobile Apps Development
- GIS
All Shared Work is Business Driven

• Business and Industry Leadership Team (BILT) – 4 National teams for 4 IT Specialties

• Each leads multiple institutions on curriculum, equipment, lab experiences, etc.

• Meets quarterly, not 1-2 times per year

• Right people on the council
  – High-level technical executives
  – First line managers
  – Technicians
  – HR representatives (so long as they are not the only representative for their company)
BILT is More than an Advisory Council

- Businesses LEAD the work and are part of the leadership team
- Appropriate name is Business & Industry Leadership Team (BILT) *Leadership, not Advisory*
- Works with colleges and universities alike
Role of the Engaged BILT

• **One meeting per year** establishes or updates Knowledge, Skills, and Abilities needed from graduates (faculty determine how to address KSAs)

• **Other three meetings are via teleconference and cover**
  - Trends identified before need for skills to support the trend (allows time to develop curricula)
  - Forecast need for future employees
  - Grant reporting/feedback for accountability
Role of the Engaged BILT

- Involvement in recruitment events
- Professional development for faculty
- Provide internships for students
- Provide externships/job shadowing for faculty
- Provide business mentoring for virtual internship/externship
- Guest speakers
- Co-author whitepapers
- Evaluate capstone presentations
- Participate in panels at conferences
- Hire graduates
Purposes of Internships

• Experience for students, sometimes in lieu of actual job experience
• Option for students to see how they might like the work
• Opportunity for students to interface with business leaders who might continue to be mentors
Barriers to Students Experiencing Intenships

- Many students already have a job on which they are depending and cannot take off time for an internship of substance
- Timing sometimes does not align even when students and employers are willing
- Sometimes there are not enough internship openings
- Sometimes internships do not highlight or exercise soft skills sufficiently
Virtual Internship/Externships

- Alternative to traditional Internship for students
- Experience builder for both students and instructors
- “Soft skills” builder
- Strong business involvement

Virtual Internship/Externship Outline

• Project of sufficient complexity to merit teamwork and business mentor involvement
• Mentor participates via webinar over semester
• Faculty member is day to day project lead
Characteristics of the I/E project

• Business mentor characterizes project and answers questions via webinar and email
• Students design and build solution
• Students prepare report and presentation on the solution
• Presentation is made to a business panel
Specific example

- Capstone networking course dedicated to project
- Tu Huynh, vice president of IT Infrastructure at Comerica Bank served as business industry partner & mentor
- Faculty leadership provided by Cope Crisson, professor of IT
- Students tasked with designing IT systems and security for five urgent care clinics and tying them together to increase efficiency
  - Multi-site
  - Budget
  - Teamwork
  - Final Presentation
Networking Virtual Internship/Externship

- The students interfaced with Mr. Huynh via webinar five times throughout the semester for a little more than one hour
  - Discussed the project and developments the students had made towards the project
- Between interfaces the students also communicated with Mr. Huynh via email
- Culminated with the final presentation to a panel of business leaders, faculty, and IT experts
The National BILTs Support Student Success

The National Information, Security, and Geospatial Technologies Consortium (NISGTC), a U.S. DOL TAACCCT Grant, has four BILTs that meet quarterly to guide the work of the consortium in four IT specialty areas: Programming (including Mobile Apps, Database, Business Intelligence), Networking and Convergence Technology, Cybersecurity, and Geospatial Technologies. The NISGTC BILT model is based on the work of the NSF Convergence Technology Center’s (CTC) BILT that has guided the work of that Center for over 10 years. The BILT defines the knowledge, skills, and abilities business representatives want to see in future graduates and assists the colleges in numerous ways including student recruitment and hiring, class presentations and keynotes at conferences, traditional internships, and now virtual internship/externship experiences using business mentors.

National Convergence Technology Map

BILT Members Give Their Perspectives

VIDEO: Click on the play button to the left

VIDEO: Click on the play button below
BILT Virtual Internship and Externship

Experience gained from traditional internships benefits students by exposing them to real-world work. However, busy college students realize barriers to completing an internship, and opportunities may not be available at the time the student qualifies for such an experience. The National CTC and NISGTC has developed a virtual internship/externship to help overcome these obstacles. A virtual internship/externship comprises a team of students who design a solution to a real world problem or case study under the guidance of a business mentor. The mentor interfaces with the team four to five times throughout the semester via webinar. During these sessions, the business mentor helps the students and their faculty leader to design, document and implement a solution. The experience culminates in a face-to-face business panel review of the students’ presentation describing how they solved the business problem.

Meet the Students
VIDEO: Click on the play button below

Visit us online at:
NISGTC - www.nisgtc.org
CTC – www.connectedtech.org

NISGTC Map

Collin County Community College District is an equal opportunity institution and provides education and employment opportunities without discrimination on the basis of race, color, religion, gender, age, national origin disability or veteran status. For more information contact ACCESS at 972-881-5888/TTY. For persons with hearing or speech impairments please use the Texas Relay Services when calling offices or departments on campus do not use a TDD number. The Texas Relay number is 1-800-733-3288 (TDD) “This workforce solution was funded by a grant awarded by the U.S. Department of Labor’s Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability or ownership.”

This material is based upon work supported by the National Science Foundation under Grant No. 1205017 and Grant No. 0900236. 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 National Science Foundation.

Designed by: Ciely Miller
Results

- The one student who was already employed landed another position with a $15K increase and used the project in his portfolio in the process.
- The other two landed very nice positions using the project writeup/portfolio also.
- Faculty member reported learning improvement also.
Benefits of Portfolios

- Businesses expect students to come to interviews with experience, but it does not have to be job experience
- Better than answering “How many balloons would it take to fill the room?”
- Businesses are beginning to expect an online portfolios/resumes
Questions and Answers

Dr. Ann Beheler
abeheeler@collin.edu
1-972-377-1649
www.ConnectedTech.org

This material is based upon work supported by the National Science Foundation under Grant No. 1205077 and Grant No. 0903239. 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 National Science Foundation.