Leveraging Grant Funding for Student Benefit in Information Technology

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League for Innovations
Innovations Conference
March, 2015

Work Supported by:
National Science Foundation and
The U.S. Department of Labor
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
Center for System Security & Information Assurance

- A National Science Foundation Center based in Palos Hills, IL at Moraine Valley Community College
- Awarded ATE Regional in 2003
- Awarded ATE National Resource Center in 2009
- Awarded ATE National Support Center 2015
CSSIA partners

Rock Valley Community College

Illinois Technology Foundation

Local Employers

- Dell SecureWorks, RCON, Sentinel Technologies
- Cisco Systems, EMC, VMWare, Citrix, ESPO Systems, NDG
- Argonne National Labs, NSA, NCL, CyberAces, NIST
IT and Cyber-related NSF Centers

• Asked to form 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
U.S. Department of Labor Grant

• DOL grant was built on the work of 4 NSF Centers
• DOL, College, and NSF funding provided
  – Equipment for a virtual laboratory and a fortuitous update to all Cisco labs
  – Open source online curriculum content 100 courses by September 30, 2015 when grant ended
  – 250 open source virtual laboratories
  – Virtual internship/externship initial work
  – Career coaches and IT-specific tutors
All Shared Work is Business Driven

- Business and Industry Leadership Team (BILT)
- National Council advising multiple colleges and universities 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

- Trends identified before need for skills to support the trend (allows time to develop curricula)
- Solid process, business-driven, to determine Knowledge, Skills, and Abilities needed from graduates (faculty determine how to address KSAs)
- Forecast need for future employees
- Involvement in recruitment events
- Professional development for faculty
Role of the Engaged BILT

- 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
What we share

• Curriculum patterns
• Actual courseware
• Online courses
• Equipment for virtual laboratories
• Actual virtual laboratory configuration
• Professional Development

• Virtual internship/externship model
  – Portfolio model
• Processes/workshops
  – Resume writing
  – Processes for improving recruitment/retention/placement of women and minorities
  – Interviewing tips and techniques
Virtual Internship/Externships

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

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This material is based upon work supported by the National Science Foundation under Grant No. 1204977 and Grant No. 0803458. 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: Cicely Miller
Virtual Labs

• 250 new laboratories available on the NetLab platform covering subjects ranging from networking, cybersecurity to GIS

• Paper labs are free

• NetLab requires specific hardware
Virtual Labs

• 250 new virtual labs on NetLab platform + vendor labs

<table>
<thead>
<tr>
<th>Labs Available</th>
<th># of Labs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security Awareness</td>
<td>9</td>
</tr>
<tr>
<td>Ethical Hacking</td>
<td>19</td>
</tr>
<tr>
<td>Security+ Essentials</td>
<td>20</td>
</tr>
<tr>
<td>Digital Forensics</td>
<td>16</td>
</tr>
<tr>
<td>Network Security</td>
<td>12</td>
</tr>
<tr>
<td>Linux Fundamentals Series 1</td>
<td>10</td>
</tr>
<tr>
<td>Linux Fundamentals Series 2</td>
<td>12</td>
</tr>
<tr>
<td>Network+</td>
<td>12</td>
</tr>
<tr>
<td>Computer Maintenance 2 (A+, part II)</td>
<td>11</td>
</tr>
<tr>
<td>GIS Labs, both ESRI and Open Source over 5 courses</td>
<td>72+</td>
</tr>
</tbody>
</table>
Professional Development

- Working Connections IT Faculty Development sponsored by NSF grant at Collin continues
  - Annual week-long professional development held in Frisco, TX just outside of Dallas
  - Funded by NSF to help faculty members learn enough to teach an entirely new class in an emerging technology area
  - Networking with others
  - July 11-15, 2016
Free Online Courseware

• Open Source – find source documents at www.skillscommons.org (search NISGTC)

• 4 IT strands +
  – Networking/Communications
  – Cybersecurity
  – Geospatial Technologies
  – Programming including Mobile Apps
  – Entrepreneurship and other supporting areas
For more information

- National Science Foundation Centers are providing technical assistance to DOL TAACCCT grantees and others
  - Next webinar is March 24 regarding Communities of Practice (CoP)
  - HI-TEC conference July 25-28 with TAACCCT Friday morning July 29 follow up convening of TAACCCT grantees
Sustainability

- Graduation Process
- Student Support Processes
- Faculty Development Institute
- Virtual Labs
- Internship System
Questions and Answers

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www.NISGTC.org