Engaging Employers, Defining Skills, and Preparing Students

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FACT

- Educators believe their graduates are prepared for work

- Businesses do not agree

- Depending on the study, percentages vary

- Percentages on each "side" are not always the same, but the trends match

- Both businesses and educators want the graduates to be workforce-ready

WHY ARE SKILL STANDARDS IMPORTANT?

- Provide a blueprint for how the technical knowledge and skills in the IT high-performance workplaces are organized and how the roles of workers contribute to the success of the enterprise.

- This project also embraces a future focus

- Note: Business and Industry want to hire students who can integrate products, not just one vendor experts

WHY ARE SKILL STANDARDS IMPORTANT?

- EDUCATORS use skill standards to create curriculum that is relevant, current, and future-facing to better prepare students to meet employers' job requirements.

- This project is creating Student Learning Outcomes for model curriculum so that a broader range of educators can better-prepare students for the workforce

IT SKILL STANDARDS 2020 AND BEYOND

WHY ARE SKILL STANDARDS IMPORTANT?

- EMPLOYERS use skill standards to improve communications about job openings so they hire the most qualified candidates to address their current and emerging needs, and to improve their internal training and development.

- They make IT careers more accessible to students and employers because they provide transparency regarding the knowledge, skills, and abilities (KSAs) as well as the performance needed for success in the job market.

ITSS 2020's PURPOSE

- Widen the pipeline of qualified IT workers

IT SKILL STANDARDS 2020 AND BEYOND

ITSS 2020's PURPOSE

- CREATE a contemporary and future-facing set of IT Skill Standards for the most critical IT job clusters, led by employer subject matter experts (SMEs) nationally.

- ENLIST 40+ subject matter experts for each Job Cluster to create the knowledge, skills, abilities, tasks, and performance criteria using a Modified DACUM and follow-up web conferences and surveys.

More on this Modified DACUM process in a moment.

IT SKILL STANDARDS 2020 AND BEYOND

ITSS 2020's PURPOSE

- DETERMINE which portions of the standards apply to 2-yr. and 4-yr. programs to facilitate ease of use in development of employer-aligned student learning outcomes and curriculum.

- ASSIST both employers and educators to more easily apply the standards.

Note that ITSS is incorporating other existing skill standards (e.g. NICE and NIST, ACM, various state standards) – no reinvention of the wheel.

IT SKILL STANDARDS 2020 AND BEYOND

Recruit at least 50 employer thought leaders with expertise in all aspects of IT to create final draft list of critically-needed job clusters in IT

Disseminate list to 150 additional companies for review and comment to confirm and verify 8-10 Clusters

FINALIZE CLUSTERS and VERIFY

Employer SME meetings (or other means) to develop preliminary tasks, knowledge, skills and abilities for each cluster

Recruit 30-40 employer SMEs per cluster

Hold SME meetings using the modified DACUM (PCAL7) process to draft the full skill standards for each cluster that includes tasks, knowledge, skills, and abilities

Synthesize results of multiple SME meetings and qualitatively analyze the meeting discussions regarding missing items

Send synthesized data to the employer SMEs per cluster and request a broader review and comment

Post results on public website and distribute to make broader requests for comment

Incorporate feedback and revise the skill standards after posting on the public website for ~2 month period

Conflicting or particularly complex feedback will be addressed by the original employer SMEs

After feedback is incorporated, employer SMEs will review revised draft for finalization

Employer SMEs for each cluster identify relevant job titles

Educator SMEs convert KSAs and tasks into student learning outcomes

Educators and representative employer SMEs develop performance indicators using the KSAs and tasks

DETERMINE STANDARDS PER CLUSTER and VERIFY

Disseminate the skill standards to educators, employers (including government) and industry associations

Develop and pilot policies and procedures to keep the skill standards updated

DISSEMINATE

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FINALIZE CLUSTERS and VERIFY

Network Administration

	COMMON JOB TITLES
Manages the day-to-day operations of an organization's computer networks, including the systems that connect computers and other technology to each other and to outside networks. Installs, organizes, and supports the hardware and software of these systems.	Systems Administrator Network Administrator Senior Systems Administrator Linux Systems Administrator Windows Systems Administrator

BG OCCUPATION	POSTINGS LAST 6 MONTHS	UNFILLED JOBS LAST 6 MONTHS	+/- THROUGH 2026
Network Administrator	56,892	>60%	6.1%

Data from Labor Insights tool from Burning Glass Technologies

Four 2-hour Virtual Thought Leader Meetings to Identify the Most Critical Clusters

Thought Leader Meetings

- February 19, 2019
- February 20, 2019
- February 21, 2019
- March 1, 2019

Total of 98 employers participated from across the nation.

Synthesized data sent out for verification to 147 employers with 82 responses.

7 of 10 Job Clusters Identified

- **Infrastructure Connectivity, Management and Engineering**

- **Technical Support**

- **Technical Project and Program Management**

- **Data Management and Engineering**

- **Data Analytics and Predictive Modeling**

- **Software Development**

- **Security**

Three 2-hour Virtual Thought Leader Follow-Up Meetings to Identify the Other Clusters

Thought Leader Follow-Up Meetings

- November 9, 2020
- November 17, 2020
- December 2, 2020

Total of XX employers participated from across the nation.

Next step: sending out synthesized data for verification.

Employer SME meetings (or other means) to develop preliminary tasks, knowledge, skills and abilities for each cluster

Recruit 30-40 employer SMEs per cluster

Hold SME meetings using the modified DACUM (PCAL7) process to draft the full skill standards for each cluster that includes tasks, knowledge, skills, and abilities

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Send synthesized data to the employer SMEs per cluster and request a broader review and comment

DETERMINE STANDARDS PER CLUSTER and VERIFY

Progress

Each face to face job cluster meeting lasted six hours. During each meeting, there was a working lunch during which employer SMEs voted on and discussed employability skills.

Infrastructure

May 14, 2019; Frisco, TX

June 25, 2019; Houston, TX

July 17, 2019; Jacksonville, FL

August 17, 2019; Seattle, WA

KPI meeting August 20, 2020 online

Technical Support

September 17, 2019; Sunnyvale, CA

September 25, 2019; Frisco, TX

KPI meeting August 25, 2020 online

Progress

Technical Project Management

November 13, 2019; Alexandria, VA

November 19, 2019; Frisco, TX

KPI meeting October 13, 2020 online

Data Analytics/Predictive Modelling

March 12, 2020; Alexandria, VA

March 31, 2020; Virtual due to COVID-19

April 30, 2020; Virtual due to COVID-19

KPI meeting July 14, 2020 online

Data Management and Engineering

October 1, 2020; Virtual due to COVID

October 29, 2020; Virtual due to COVID

KPI meeting pending

Scheduled for 2021

- Host "Software Development" and "Security" job cluster meetings.

- Plan to host next cluster meetings pending results of Thought Leader recommendations.

Post results on public website and distribute to make broader requests for comment

Incorporate feedback and revise the skill standards after posting on the public website for ~2 month period

Conflicting or particularly complex feedback will be addressed by the original employer SMEs

After feedback is incorporated, employer SMEs will review revised draft for finalization

DETERMINE STANDARDS PER CLUSTER and VERIFY

NSF

COLLIN COLLEGE

IT SKILL STANDARDS 2020 AND BEYOND

Update on Web Posting

Draft skill standards, employability skills and employer-demanded key performance indicators have been posted for…
- Infrastructure
- Data Analytics & Predictive Modeling
- Technical Project Management
- Technical Support

Next: Data Management and Engineering

www.connectedtech.org/itss-2020/

Employer SMEs for each cluster identify relevant job titles

Educator SMEs convert KSAs and tasks into student learning outcomes

DETERMINE STANDARDS PER CLUSTER and VERIFY

Educators and representative employer SMEs develop performance indicators using the KSAs and tasks

Scheduled for 2021

Faculty SMEs create student learning outcomes (SLOs) for each of the first five job clusters.

- Infrastructure
- Data Analytics & Predictive Modeling
- Data Management and Engineering
- Technical Project Management
- Technical Support

Disseminate the skill standards to educators, employers (including government) and industry associations

Develop and pilot policies and procedures to keep the skill standards updated

DISSEMINATE

Agenda

IT SKILL STANDARDS 2020 AND BEYOND

Scheduled for 2021

- Skill Standards, Key Performance Indicators, Employability Skills published; Thought Leaders and SMEs invited to comment

- Begin creation of "How to" documents and "How to Use" videos.

- Begin dissemination through webinars and conference presentations.

THE "BILT MODEL" – modified DACUM

- The Business and Industry Leadership Team is a Business Advisory Council "on steroids" and is foundational for ITSS work
    - Co-leads the program – more input means greater sense of ownership
    - Identifies entry-level KSAs (steers curriculum to align with their needs)
    - Shares sector trends and forecasts labor market demand
    - Develops deep, invested relationships with colleges preparing their future employees (they want to hire your graduates)
    - Helps deliver "workforce-ready" graduates

- BILT works for any technical program at any size college

IT SKILL STANDARDS 2020 AND BEYOND

THE "BILT MODEL"

- Seven essential elements to the BILT Model

1. BILT is divided by sub-disciplines/specific focus

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THE "BILT MODEL"

2. Convene your BILT more than once a year, preferably 3-4 times – really only once in three parts of the country or at least at 2-3 different times for virtual meetings - for ITSS

In-person meeting

Conference call web meeting

THE "BILT MODEL"

3. Allow time on your meeting agenda for the BILT to discuss their perspective on industry trends. For ITSS this is a discussion of items that may have been left off the pro form KSA list.

THE "BILT MODEL"

4. Invite all of your faculty to attend BILT meetings so they can hear first-hand the discussions of trends and job skills. For ITSS, educator SMEs are invited to join employer SMEs.

THE "BILT MODEL"

5. Once a year prioritize a detailed list of the knowledge, skills, and abilities (KSAs) the BILT wants graduates to have 12-36 months from now. ITSS does this once – and then will be updating the list quarterly.

KSA RANKINGS

4 The KSA must be included in the curriculum

3 The KSA really should be included in the curriculum

2 It would be nice for the KSA to be included in the curriculum

1 The KSA can be left out of the curriculum entirely

This 1-4 Ranking Criteria 1-4 considers the following together:

- Importance
- Level of proficiency
- Time spent doing the skill
- Difficulty – how difficult is the skill to learn?

THE "BILT MODEL"

6. Ask faculty to map the prioritized list of KSAs to current curriculum to make sure it aligns. If there are gaps, make adjustments or be prepared to discuss why adjustments can't be made with the BILT. For ITSS, faculty at colleges and universities nationally will be trained to map ITSS standards to their curriculum and present results back to their own BILT teams.

THE "BILT MODEL"

7. Give regular feedback to the BILT regarding the implementation of their recommendations. If you can't do what they ask, explain why you can't. The BILT can sometimes find solutions. For ITSS, educators will be taught how to share feedback with their own BILT teams.

THE "BILT MODEL"

- Selecting the best employer SMEs for ITSS analysis

- BILT members need to be able to predict their future needs and the future of the IT/Cyber industry
  - High-level technical executives – CTOs, CIOs, technical strategists
  - First-line hiring managers
  - Possibly a few technicians – ITSS focuses on senior-level SMEs
  - HR representatives, as long as they are not the sole reps for a company

Sustainability

Ongoing process

- Piloting a crowd-sourcing approach to keep the job skills updated has already begun
  - Subject Matter Experts apply for permission to comment
  - Comments are made and evaluated every quarter for inclusion/change to the skill standards.

- Have begun seeking industry financial support and leadership to sustain the work as well

What Can You Do?

- Sign up to get on our distribution list for skill standards so you can receive them as they are finalized

- Apply to be one of our educator SMEs for your cluster or clusters of expertise

- Recommend appropriate employer SMEs

- SMEs who may be interested and able to participate in the IT Skill Standards 2020 and Beyond Skill Standards meetings

Questions?

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