ACM Competency Model of Core Learning Outcomes and Assessment for Associate-Degree Curriculum in Information Technology

Cara Tang, PhD
ACM Committee for Computing Education in Community Colleges (ACM CCECC)
MPICT Winter Conference, January 2015
Outline

• Process
• The IT Curricular Guidance
• Degree and Certificate Correlations
• Discussion
The Process: Phase 1 (2011-2012)

Determine need for & nature of guidance

• Compelling need for IT curricular guidance for the associate-degree level
• Guidance should be built on a framework of core learning outcomes
• Accompanied by meaningful evaluation metrics
• Influenced by
  – Current and future needs of business and industry
  – New and emerging technology
  – International perspectives
  – Certifications
  – Related curricula
  – Government and standards bodies
The Process: Phase 2 (2012-2014)

Review related existing guidance and ontologies
- U.S. Dept. of Labor IT Competency Model
- ACM IT Baccalaureate Guidelines
- European e-Competence Framework
- CSTA Computer Science Standards

Convene subject matter experts from
- business and industry
- two-year college faculty
- assessment experts

Draft core IT learning outcomes and assessment rubrics

Strawman and Ironman drafts available for public review and comment

Final report approved October 2014

• Available at CAPSpace.org and in the ACM Digital Library
  • capspace.org/ITreport/
  • http://dl.acm.org/citation.cfm?id=2686614
• ACM order #99914 for a hard copy (Only pay shipping & handling)

Collect certificate and degree correlations

• More on this later...
IT Curricular Guidance

• 50 student learning outcomes of core IT competencies
• Three-tiered assessment rubric for each learning outcome
• Mappings to other curricula and frameworks, including
  – ACM IT Baccalaureate Guidelines
  – U.S. Dept. of Labor IT Competency Model
  – Common Criteria for Information Technology Security Evaluation
  – European e-Competence Framework
  – CSTA Computer Science Standards
• Correlations that align a variety of certificate and degree programs with the core IT learning outcomes
IT Curricular Guidance

• Champions include
  – MPlCT
  – BATEC
  – CSSIA
  – CSTA
  – CyberWatch
  – Cisco
  – Google
  – Intel
  – Microsoft
  – IBM
  – Maricopa Community College District
  – Portland Community College
  – Bluegrass Community and Technical College
  – Union County College

• “Champions appreciate the importance of robust associate-degree IT programs, make a commitment to the academic foundations of IT students, and promote education that meaningfully prepares graduates as future employees and practitioners.”
Using the Guidance

- [capspace.org/ITreport/](capspace.org/ITreport/) “How to use this Competency-based Curricular Guidance” pg 7

- Conducting program reviews to update and create curriculum
- Creating program outcomes
- Facilitating program and course articulation
- Crafting course and program assessments
- ...

The 50 Learning Outcomes

- Include both technical and behavioral outcomes
- Organized in 12 program outcomes
- Span the first 3 levels of Bloom’s Revised Taxonomy

Lower Order Thinking Skills:
- Remembering: 5
- Understanding: 27
- Applying: 18

Higher Order Thinking Skills:
- Analyzing: 27
- Evaluating: 18
- Creating: 5
Degree and Certificate Correlations

• Growing collection of correlations that align a degree or certificate program with ACM’s core IT learning outcomes

  – capsphere.org → Curricula → Program Inventory → Institutional Computing Programs or Certificates Correlated with the ACM CCECC Program

• Correlate your program!

  – capsphere.org/correlation/
ACM CCECC Contact Info

• ACM CCECC Members
  – Elizabeth K. Hawthorne, Chair, e.hawthorne@acmccecc.org
  – Cara Tang, Vice-Chair, ctang@acmccecc.org
  – Cindy S. Tucker, ctucker@acmccecc.org

• Website: www.capspace.org

• Feedback or to join our affiliate list: capsace.org/contactus/