ACM/IEEE-CS/AAAI COMPUTER SCIENCE CURRICULA (CS202X)

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Task Force Participation

Task Force = Steering Committee + KA Committees

- Africa – Middle East
  - Egypt, Qatar, South Africa
- Asia – Pacific
  - China, India, New Zealand
- Europe
  - Germany, Ireland, Italy, Poland, Spain, UK
- North America
  - USA, Canada
- South America
  - Brazil
Surveys

- Academic Survey
  - US - 212 respondents
  - Global - 191 respondents

- Industry Survey
  - 865 respondents

- Surveys, summaries posted on csed.acm.org
Vision

- Curricular Guidelines - what
  - Body of Knowledge
    - Knowledge Areas
    - Learning Outcomes
  - Models used
    - Knowledge model
    - Competency model
  - Consistency between the two
- Online version
  - Machine-readable

- Curricular Practices – why, how
  - Social
  - Professional
  - Programmatic Considerations
Body of Knowledge

- Knowledge Areas
- Illustrative Learning Outcomes
  - No CS2013 skill level, i.e., no familiarity/usage/assessment
  - Emphasis on higher level skills
  - Interdisciplinary outcomes
- Core Hours
- Competency Model
Knowledge Areas - 1

- AI - Artificial Intelligence
  (CS2013: Intelligent Systems)
- AL - Algorithms and Complexity
- AR - Architecture and Organization
- DM - Data Management
  (CS2013: Information Management)
- GIT - Graphics and Interactive Techniques
  (CS2013: Graphics and Visualization)
- HCI - Human-Computer Interaction
Knowledge Areas - 2

- MF - Mathematical Foundations
  (CS2013: Discrete Structures)
- MOD - Modeling
  (CS2013: Computational Science)
- NC - Networking and Communication
- OS - Operating Systems
- PD - Parallel and Distributed Computing
- PL - Programming Languages
Knowledge Areas - 3

- SDF - Software Development Fundamentals
- SE - Software Engineering
- SEC - Security
  (CS2013: Information Assurance and Security)
- SEP – Society, Ethics and Professionalism
  (CS2013: Social Issues and Professional Practice)
- SF - Systems Fundamentals
- SPD - Specialized Platform Development
  (CS2013: Platform-Based Development)
Version Alpha

- Posted on csed.acm.org
  - Email, form for each KA
  - Posted to 12+ SIGs, country mailing lists in May
    - Quarterly outreach
- Undergoing reviews
Core Hours

- CS2013:
  - Core Tier I
    - 165 hours
  - Core Tier II
    - 143 hours – 80% coverage adequate

- Current Plan for CS202X:
  - CS Core: what every CS graduate must know
  - KA Core: what any coverage of the Knowledge Area must include

280 hours (CC2001) → 290 (CS2008) → max 308 (CS2013) → ??
Core Hours – CS2013 vs CS202X
Competency Model

- Competency = Knowledge + Skills + Dispositions (from CC2020)
- Dispositions:
  - Cultivated behaviors desirable in the workplace
- For each KA:
  - Dispositions identified
  - Competency statements listed
Curricular Practices

- Written by recognized experts
- Peer-reviewed articles
  - Not position papers
- Program design and delivery issues
  - Social aspects
  - Professional practices
  - Programmatic considerations
Curricular Practices
- Social Aspects

- Accessibility
- Planned:
  - Ethics in CS education
  - CS 4 Good
  - Diversity of DEI
Curricular Practices
- Professional Practices

- CS education in the liberal arts context
- CS education in community colleges
- CS education in China

Planned:
- CS Education in Australasia, Latin America, India
  - Globalizing CS education
- Curricular aspects of CS as a professional discipline
- Role of professional accreditation/certification in CS
Curricular Practices
- Programmatic Considerations

- CS + X

Planned:
- Future of CS educational materials
- High impact practices in CS education
- AI in CS education
- Undergraduate research in CS
- Curricular aspects of CS as a science
- Math across CS
- Role of liberal arts in CS education
- Crosscutting themes in CS
We Invite Your Participation

- Curricular Practices (csed.acm.org)
  - Topics
  - Contributors
- Curricular Guidelines (csed.acm.org)
  - Feedback, suggestions
  - Volunteer to contribute
    - Feedback form, Email address for each Knowledge Area
- Contest on Characteristics of CS Graduates
  - contest@volunteer.acm.org