

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

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Association for
Computing Machinery



IEEE
COMPUTER
SOCIETY





The Task Force

Steering Committee (17 members) + Knowledge Area 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



CS202X Components

- ▶ Curricular Content - *what*
- ▶ Curricular Practices – *how, why*



Curricular Content

- ▶ Body of Knowledge
 - ▶ 18 Knowledge Areas
- ▶ Core Hours

Knowledge Areas (≠ Courses)

- AI - Artificial Intelligence
- AL - Algorithms and Complexity
- AR - Architecture and Organization
- DM - Data Management
- GIT - Graphics and Interactive Techniques
- HCI - Human-Computer Interaction
- MF - Mathematical Foundations
- MOD - Modeling
- NC - Networking and Communication
- OS - Operating Systems
- PD - Parallel and Distributed Computing
- PL - Programming Languages
- SDF - Software Development Fundamentals
- SE - Software Engineering
- SEC - Security
- SEP – Society, Ethics and Professionalism
- SF - Systems Fundamentals
- SPD - Specialized Platform Development



Knowledge Area

- ◆ Knowledge Model
 - ◆ Knowledge Units
 - ◆ Shared concepts
 - ◆ Illustrative learning outcomes
 - ◆ Emphasis on higher level skills
 - ◆ Interdisciplinary outcomes
- ◆ Competency Model
 - ◆ Desirable professional dispositions identified
 - ◆ Competency statements listed



Version Alpha

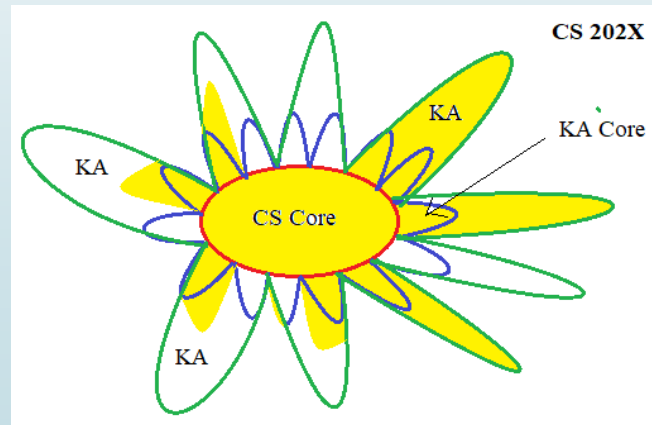
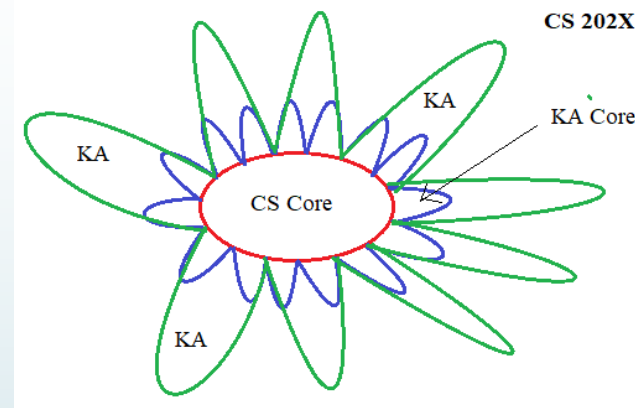
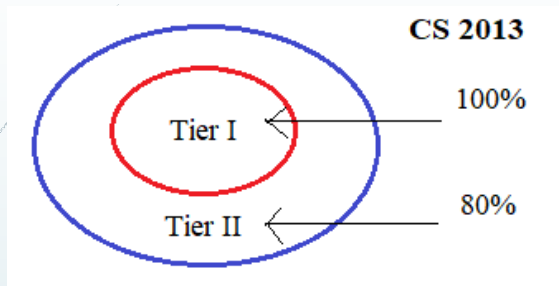
- ▶ Posted on csed.acm.org
 - ▶ Email, form for each KA
 - ▶ Posted to 12+ SIGs, country mailing lists in May
 - ▶ Quarterly outreach
- ▶ Undergoing reviews

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





Curricular Practices

- Written by experts
 - Not position papers
 - Peer-reviewed
- Program design and delivery
 - Social aspects
 - Professional practices
 - Programmatic considerations



Social Aspects

- ▶ Accessibility
- ▶ Planned:
 - ▶ Ethics in CS education
 - ▶ CS 4 Good
 - ▶ Diversity of DEI



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
 - ▶ *CS education across the world*
 - ▶ Curricular aspects of CS as a professional discipline
 - ▶ Role of professional accreditation/certification in CS



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



Discussion Prompts

- ♦ Curricular Content (cse.acm.org)
 1. What recent developments should be included?
 - ♦ Feedback form, Email address for *each* Knowledge Area
- ♦ Curricular Practices (cse.acm.org)
 2. What topics would be of interest to CS educators?
- ♦ Engagement
 3. How else can we engage the CS education community?