The course is an integrative experience that brings together all components of the undergraduate computer science curriculum in an applied, hands-on real-world setting. The course is three-credits lecture and one-credit lab.

**Prerequisite:** CS 33007 and 33901 and 35201.

**Schedule Type:** Combined Lecture and Lab

**Contact Hours:** 4 other

**Textbook:** *None. Lectures developed from online sources.*

**Topics to be Covered (showing ACM content covered):**

1. **Software Project Management** 3 class hours
   
   (a) Agile Project Management 2
   
   (b) **[Core-Tier2] SE/Software Project Management** 1 class hour
   
   i. Team participation
      
      A. Team processes including responsibilities for tasks, meeting structure, and work schedule
      
      B. Roles and responsibilities in a software team
      
      C. Team conflict resolution
      
      D. Risks associated with virtual teams (communication, perception, structure)
   
   ii. Effort Estimation (at the personal level)
   
   iii. Risk (cross reference IAS/Secure Software Engineering)
      
      A. The role of risk in the lifecycle
      
      B. Risk categories including security, safety, market, financial, technology, people, quality, structure and process

2. **Social Issues and Professional Practice** 19 class hours

   (a) **[Core-Tier1] SP/Social Context** 1 class hour
      
      i. Social implications of computing in a networked world (cross-reference HCI/Foundations/social models; IAS/Fundamental Concepts/social issues)
      
      ii. Impact of social media on individualism, collectivism and culture.

   (b) **[Core-Tier2] SP/Social Context** 2 class hours
      
      i. Growth and control of the Internet (cross-reference NC/Introduction/organization of the Internet)
      
      ii. Often referred to as the digital divide, differences in access to digital technology resources and its resulting ramifications for gender, class, ethnicity, geography, and/or underdeveloped countries.
      
      iii. Accessibility issues, including legal requirements
      

   (c) **[Core-Tier1] SP/Analytical Tools** 2 class hours
      
      i. Ethical argumentation
      
      ii. Ethical theories and decision-making
      
      iii. Moral assumptions and values

   (d) **[Core-Tier2] SP/Professional Ethics** 2 class hours
      
      i. Community values and the laws by which we live
      
      ii. The nature of professionalism including care, attention and discipline, fiduciary responsibility, and mentoring
      
      iii. Keeping up-to-date as a computing professional in terms of familiarity, tools, skills, legal and professional framework as well as the ability to self-assess and progress in the computing field
      
      iv. Professional certification, codes of ethics, conduct, and practice, such as the ACM/IEEE-CS, SE, AITP, IFIP and international societies (cross-reference IAS/Fundamental Concepts/ethical issues)
      
      v. Accountability, responsibility and liability (e.g. software correctness, reliability and safety, as well as ethical confidentiality of cybersecurity professionals)
(e) [Core-Tier2] SP/Professional Ethics  2 class hours
   i. The role of the computing professional in public policy
   ii. Maintaining awareness of consequences
   iii. Ethical dissent and whistle-blowing
   iv. The relationship between regional culture and ethical dilemmas
   v. Dealing with harassment and discrimination
   vi. Forms of professional credentialing
   vii. Acceptable use policies for computing in the workplace
   viii. Ergonomics and healthy computing environments
   ix. Time to market and cost considerations versus quality professional standards

(f) [Core-Tier1] SP/Intellectual Property 2 class hours
   i. Philosophical foundations of intellectual property
   ii. Intellectual property rights (cross-reference IM/Information Storage and Retrieval/intellectual property and protection)
   iii. Intangible digital intellectual property (IDIP)
   iv. Legal foundations for intellectual property protection
   v. Digital rights management
   vi. Copyrights, patents, trade secrets, trademarks
   vii. Plagiarism

(g) [Core-Tier1] SP/Privacy and Civil Liberties 2 class hours
   i. Philosophical foundations of privacy rights (cross-reference IS/Fundamental Issues/philosophical issues)
   ii. Legal foundations of privacy protection
   iii. Privacy implications of widespread data collection for transactional databases, data warehouses, surveillance systems, and cloud computing (cross-reference IM/Database Systems/data independence; IM/Data Mining/data cleaning)
   iv. Ramifications of differential privacy
   v. Technology-based solutions for privacy protection (cross-reference IAS/Threats and Attacks/attacks on privacy and anonymity)

(h) [Core-Tier1] SP/Professional Communication 1 class hour
   i. Reading, understanding and summarizing technical material, including source code and documentation
   ii. Writing effective technical documentation and materials
   iii. Dynamics of oral, written, and electronic team and group communication (cross-reference
   iv. HCI/Collaboration and Communication/group communication; SE/Project Management/team participation)
   v. Communicating professionally with stakeholders
   vi. Utilizing collaboration tools (cross-reference HCI/Collaboration and Communication/online communities; IS/Agents/collaborative agents)

(i) Preparing Technical Presentations  3 class hours

(j) [Core-Tier1] SP/Sustainability 1 class hours
   i. Being a sustainable practitioner by taking into consideration cultural and environmental impacts of implementation decisions (e.g. organizational policies, economic viability, and resource consumption).
   ii. Explore global social and environmental impacts of computer use and disposal (e-waste)

(k) [Core-Tier2] SP/Sustainability 1 class hours
   i. Environmental impacts of design choices in specific areas such as algorithms, operating systems, networks, databases, or human-computer interaction (cross-reference SE/Software Evaluation/software evolution; HCI/Design-Oriented HCI/sustainability)

3. Project Planning and Development  35 class hours