



### **Course Description**

#### **CGS2091 | Professional Ethics and Social Issues in CS | 4.00 credits**

This course is designed to provide computer science majors and others with an introduction to professional ethics & social issues in Computer Science. Students will learn theories associated with the legal, ethical, and social issues relevant to information technology, and the roles and responsibilities of computer professionals in today's technological society.

### **Course Competencies:**

**Competency 1:** The student will demonstrate an understanding of the history of computing, hardware, software, and networking by:

1. Listing the contributions of several pioneers in the computing field
2. Identifying major milestones in the history of computing, networking, and information storage/retrieval.
3. Discussing how the changes in technology have affected businesses, government, and personal lives

**Competency 2:** The student will demonstrate an understanding of ethical theories and arguments by:

1. Defining Utilitarianism, Kantianism, and other leading ethical theories
2. Identifying the strengths and weaknesses of these ethical theories
3. Applying ethical theories to various situations and issues in information technology by creating an argument
4. Analyzing the different answers given by the application of competing ethical theories
5. Identifying the problems of ethical relativism

**Competency 3:** The student will demonstrate an understanding of professional and ethical responsibilities by:

1. Describing the characteristics of a profession
2. Comparing different careers in information technology and their respective responsibilities
3. Evaluating the professional codes of ethics from a leading computer organization such as the Association for Computing Machinery (ACM) and the Institute of Electrical & Electronics Engineers, Inc. (IEEE) Computer Society
4. Applying the principles of a professional code of ethics to various real-world situations
5. Evaluating the ethics of “whistle-blowing” and discussing various case studies
6. Describing and configuring the accessibility features of a computer to ensure reasonable accommodations for disabled employees
7. Implementing an ergonomics checklist to ensure a comfortable computing environment

**Competency 4:** The student will demonstrate an understanding of the risks and liabilities of computer-based systems by:

1. Describing the different sources of computer errors, such as data-retrieval, programming bugs, and embedded chips
2. Identifying various large-scale and/or catastrophic computer errors throughout history
3. Using a computer simulation and discussing the benefits of these types of systems
4. Describing the stages of software development and the efforts to make software more reliable
5. Discussing the laws and ethical issues related to software warranties

**Competency 5:** The student will demonstrate an understanding of intellectual property by:

1. Describing the differences between patent, copyright, trademark, and trade secret protection
2. Identifying the criteria for “fair use” and evaluating situations in which it may apply

3. Identifying different types of digital rights management and their effects on combating piracy
4. Discussing the morality of file sharing via peer-to-peer networks and the responses by copyright holders
5. Describing the differences between various types of software licenses
6. Answering common user/business questions about proper use by analyzing an actual software license
7. Defining open-source software and evaluating its effects on the software industry

**Competency 6:** The student will demonstrate an understanding of PR summarizing the ethical and legal basis for privacy protection.

1. Describing examples of public information and public records, and identifying ways in which private information could become public
2. Analyzing current computer-based threats to privacy such as data mining, phishing and spyware
3. Analyzing technology, such as encryption, that helps protect privacy
4. Configuring history and cookie settings on web browsers to increase privacy protection
5. Discussing the ethics behind government and workplace surveillance
6. Evaluating an online privacy policy and discussing the balance between consumer protection and business needs

**Competency 6:** The student will demonstrate an understanding of privacy issues by:

1. Summarizing the ethical and legal basis for privacy protection
2. Describing examples of public information and public records, and identifying ways in which private information could become public
3. Analyzing current computer-based threats to privacy such as data mining, phishing, and spyware
4. Analyzing technology, such as encryption, that helps protect privacy
5. Configuring history and cookie settings on web browsers to increase privacy protection
6. Discussing the ethics behind government and workplace surveillance
7. Evaluating an online privacy policy and discussing the balance between consumer protection and business needs

**Competency 7:** The student will demonstrate an understanding of computer crimes and security issues by:

1. Describing the differences between viruses, worms, and other forms of malware
2. Describing the various categories/views of hackers and identifying different types of intrusions
3. Discussing the SPAM epidemic and its effects on business
4. Installing and configuring an Internet security suite
5. Identifying laws and cases that address computer crime
6. Evaluating whether certain security violations can be ethically defended

**Competency 8:** The student will demonstrate an understanding of the economic issues in computing by:

1. Evaluating the relationship between automation, productivity, and unemployment
2. Performing online research on the latest advances in artificial intelligence and evaluating its economic and social impact
3. Discussing the benefits that information technology has brought to the workplace, such as telework and teleconferencing
4. Evaluating arguments for and against globalization
5. Analyzing the criticisms and the efforts to address the digital divide

**Competency 9:** The student will demonstrate an understanding of the social context of computing by:

1. Identifying the various social aspects of the Internet such as blogs, forums, and social networking sites
2. Discussing censorship-related issues with respect to the Internet, both nationally and globally
3. Analyzing Internet laws aimed at protecting children and discussing their implications on adults

4. Installing and configuring web monitoring/filtering software
5. Discussing the factors and signs of Internet addiction, as well as its effects on individuals
- 6.

**Learning Outcomes:**

- Communicate effectively using listening, speaking, reading, and writing skills
- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information
- Create strategies that can be used to fulfill personal, civic, and social responsibilities
- Demonstrate knowledge of ethical thinking and its application to issues in society
- Use computer and emerging technologies effectively