

SOUTHEAST MISSOURI STATE UNIVERSITY

DEPARTMENT OF Computer Science **COURSE NO.** IU-315

TITLE OF COURSE Ethics In The Cyber World **REVISION** _____

NEW 12/2010

I. CATALOG DESCRIPTION AND CREDIT HOURS OF COURSE:

A. CATALOG COURSE DESCRIPTION:

Social and ethical issues and controversies concerning new and evolving technologies in the cyber-world (3).

B. MORE EXTENSIVE COURSE DESCRIPTION:

Cyber-technology refers to a broad spectrum of computing and information technologies that range from stand-alone computers to the cluster of networked computing, information, and communications technologies. The moral, legal and social issues and controversies involving cyber-technology will be discussed. For example, the moral responsibility that directly affects computer and information-technology professionals and users will be examined. The broader social and ethical concerns, such as privacy, security, crime, intellectual property, and Internet regulations that affect each of us in our day-to-day lives are also covered. Questions about the roles and responsibilities of computer and information-technology professionals in developing safe and reliable computer systems are examined. Moreover, students will apply cyber-world ethics to real-life situations and apply existing ethical problems to the cyber-world.

II. INTERDISCIPLINARY NATURE OF THE COURSE:

Students from all academic disciplines use cyber-technologies. They use personal computers, laptops, and handheld devices, and they access the internet. They interact with friends and family through MySpace, Facebook, and Twitter, and they view and upload videos to YouTube. They interact with other people in virtual worlds and participate in multiplayer online games. They complete assignments using Microsoft Word and reference Wikipedia as an encyclopedia. Cyber-technologies, whether emerging or converging, are implanted in many personal items, home appliances, cars, and public transportation. Using these technologies raises some ethical, social, and professional challenges that affect each of us in our day-to-day lives. Issues and controversies that comprise cyber-ethics will be examined. Actual and hypothetical case studies will be discussed where students can bring their own discipline and personal experiences. All students will find many issues covered in this course pertinent to their personal and professional lives. This course integrates the categories of Oral Expression and Written Expression within the Individual Expression perspective. Students in the course will perform public speaking (in the class setting) where they will verbally and nonverbally communicate their ideas and opinions

regarding cyber-technology-related ethical issues. They can use evidence, reasoning, and example to elaborate upon their opinions. In this course, a research paper is required and the students will present a summary of their research findings. They will communicate such information while using visual aids. Students will engage in discussions, and debate and advocate their opinions. In addition, written assignments will assess students' ability to relate the material covered in class to their own experiences and case studies in their world. Students will apply discussed and debated cyber-world ethics to real-life situations. They will also relate many cyber-technology ethical issues to variations of existing ethical problems.

III. PREREQUISITE(S): Oral Expression and Written Expression.

IV. PURPOSE OR OBJECTIVES OF THE COURSE:

Upon successful completion of this course, the student will:

1. Become familiar with some organizations, laws, and regulations related to a Professional Code of Ethics as well as ethical concepts and theories of different cultures, disciplines, and agencies. (Relates to Objectives 6 and 7)
2. Critically analyze contemporary cyber-related ethical issues and assess ethical aspects of emerging and converging technologies. (Relates to Objectives 1 and 2)
3. Discuss the social impact and ethical issues that emerge from the widespread use of cyber-technology. (Relates to Objectives 1, 3 and 7)
4. Apply the knowledge acquired in personal and professional decision-making situations related to cyber-technology. (Relates to Objectives 6 and 7)

V. EXPECTATIONS OF STUDENTS:

Students are expected to:

1. Participate in discussions and activities related to different topics covered in class. There will be weekly discussions engaging students in debates regarding a cyber-technology ethical issue.
2. Complete 3- 4 exams and demonstrate working knowledge of course concepts through satisfactory performance on exams. The exams will consist of multiple choice questions, True/False questions, matching questions, and short essay questions.
3. Complete weekly short-essay assignments and demonstrate working knowledge of course concepts and ability to integrate personal and non-personal experiences.
4. Write a research paper on a contemporary cyber-technology ethical issue and present their findings. Paper will be 3 – 5 pages in length, and references should be current refereed articles and/or books. The presentation will be 5 to 10 minutes long.

VI. COURSE OUTLINE:

	Class Hours
A. History of Computer Ethics <i>(Objective 6: Students will study and discuss many diverse scenarios and case studies gathered from different disciplines and real life events.)</i>	8
1. The Foundation of Technology and Information Ethics	
2. Defining Technology Ethics	
3. Understanding Ethical Concepts and Theories	
4. Professional Code of Ethics	
B. Critical Thinking for Evaluating Cyber-Ethical Issues <i>(Objective 2: Student will acquire the skills to reason and provide a sound argument regarding different issues.)</i>	8
1. Critical Thinking Skills	
2. Logical Arguments	
3. Tools for Evaluating Cyber-Ethical Issues	
4. Establishing and Justifying a Moral System	
C. Basic Concepts and Ideas in Technology Ethics, such as: <i>(Objectives 1 and 3: Students write a paper and prepare a presentation on one of the topics covered in this section.</i> <i>Objective 2, 3 and 7: Students will use the skills acquired in Section B to discuss topics covered in this section.)</i>	26
1. Professional and Moral Responsibility	
2. Privacy and Anonymity	
3. Computer System Security	
4. Crimes Involving Technology	
5. Intellectual Property & Ethical Behavior	
6. Commerce and Speech & Responsible Conduct	
7. Globalization	
8. Ethical Aspects of Emerging Technologies.	
D. Exams	3

VII. TEXTBOOK(S) AND COURSE MATERIAL:

A. Student textbook:

Herman T. Tavani. *Ethics and Technology: Controversies, Questions, and Strategies for Ethical Computing*. 3rd edition. Wiley 2010. ISBN: 0470509503.

VIII. BASIS FOR STUDENT EVALUATION:

Discussion	25%
Exams	40%
Assignments	20%
Research Paper	10%

Presentation

5%

There will be weekly assignments (around 10-12 assignments). Assignments are worth 20 % of the course grade. They will consist of short essay questions. They are used to assess the students' comprehension of key concepts, themes, issues, and scenarios covered in the course.

There will be weekly discussions which are worth 25% of the course grade. There will be higher-level "discussion-questions" designed to encourage students to reflect more deeply on some of the controversial issues examined in the course. Some discussion questions may ask students to compare and contrast arguments and topics that span multiple chapters. Strategies for analyzing discussion questions are included on the course website.

There will be one research paper and one presentation. Together they are worth 15 % of the course grade. Students will select one controversial ethical topic related to the use of cyber-technology. They will conduct research to select refereed articles (3-5 articles) to reference in their paper. They will define the technology, discuss some of its uses, mention the advantages and disadvantages of using the technology, discuss controversial ethical issues related to its use, and finally state their conclusion. They will be required to finish different requirements leading to the research paper and presentation such as 1) Identify a research topic, 2) Gather information and select recent refereed articles and/or books as references, 3) Prepare an outline, 4) Write a first draft of the paper, 5) Modify first draft and submit a final draft, and 6) Summarize findings and prepare a presentation. Each stage is assigned a deadline and a grade to ensure that students will follow these deadlines. A breakdown of these activities is shown in the table below.

Activity	Points	Grading rubric
Identify topic	10	Select a topic related to cyber-technology ethics such as: Ethical implications of Virtual Reality, Ethical implications of Bioinformatics, etc.
Find references	10	Student needs to identify at least 3 recent refereed papers/books related to the topic.
Outline	10	Identify the different sections of his/her paper. Outline should be clear, relevant, and incorporate different sections of the paper. Students will be required to update reference list if selected references are not sufficient.
First draft	30	Write the first draft of the paper. It should be clear, well written, easy to read, and show evidence of conducting outside research. Instructor will provide feedback to students which should be reflected in their final draft of the paper.
Final draft	40	Final draft should have few, if any, grammatical or spelling mistakes, and be clear and complete.
Presentation	50	Student presents a summary of his/her findings using visual aids.

There will be three to four exams including the final exam. Exams are worth 40 % of the course grade. The exams will consist of multiple-choice questions, True/False questions, matching questions and short essay questions. Exams are used to assess students' comprehension of facts, concepts, theories and topics discussed in class.

IX. JUSTIFICATION FOR INCLUSION IN THE UNIVERSITY STUDIES PROGRAM

Objective 1: Demonstrate the ability to locate and gather information

Emphasis: SIGNIFICANT

Content

Each student will select an ethically controversial topic related to the use of cyber-technology. A paper and a presentation are due towards the end of the semester. Resources can be located using an online search through the databases in Kent Library. Books found in the library are also accepted as resources. Students select the resources that match their topic and that hold valuable information related to their topic. In addition, some assignments require students to locate examples of case studies supporting their views.

Teaching Strategies

In the beginning of the semester, the instructor will briefly mention the different topics that will be covered in the course and ask students to select an ethically controversial topic related to the use of cyber-technology. The research paper and presentation are student-centered activities. The instructor will provide feedback throughout the process. In the first few stages, leading to the research paper, students gather and locate resources to be used in their research paper.

Student Assignments

To evaluate the student's ability to locate and gather information, the student must find and use a minimum of 3 refereed journals/books within their research project. Furthermore, as the student progresses from outline to final paper, he/she will need to update references as needed. A portion of the research paper grade, as discussed in section VIII, will be based on their ability to locate and gather information. In addition, some assignments require students to locate additional resources to become familiar with organizations, laws, regulations, and ethical concepts of different cultures, disciplines, and agencies related to cyber-ethics.

Evaluation of Student Performance

Ten percent of the points associated with the research paper are used to grade the student's ability to find appropriate references. Moreover, the appropriate use of those references will be considered when grading the drafts of the paper. A portion of the assignment grades will be associated with the ability of students to demonstrate that they have located and gathered information to find examples to support their views.

Objective 2: Demonstrate capabilities for critical thinking, reasoning and analyzing.

Emphasis: SIGNIFICANT

Content

The course covers several ethical topics involving cyber-technology. As each topic is covered, essential theoretical concepts are explained, and case studies are discussed. For example, one scenario studied is a cyber stalking incident involving the murder of Amy Boyer. We explain the incident and how it was carried out. The students analyze the roles of the victim and the attacker. They will also study different ethical theories discussing moral/non-moral issues resulting from the use of technology.

Teaching Strategies

Several cyber-technology-related ethical topics are covered. The instructor will initiate activities such as encouraging students to read related material and then discuss and analyze additional case studies. The instructor will discuss and explain the process of logical reasoning and how to provide a sound argument. The instructor, in discussions, will guide and make sure that students present their ideas and opinions using a sound process.

Student Assignments

Students will be required to read materials, analyze case studies, complete short essay-assignment questions and engage in discussions that require critical and analytical thought. For example, discussion or assignment questions may ask the student to think about a controversial practice involving a cyber-technology that has not yet been identified as raising an ethical issue. The student will then be directed to apply an ethical method to reason and isolate its different components. Sometimes, they will be asked to provide feedback on why they think some actions should have been performed and what they think would prevent such actions from being repeated.

Evaluation of Student Performance

Student's performance will be evaluated according to 1) ability to relate personal experience or news to case studies, 2) clarity of thought on short essays and other assignments, 3) participation in discussions, 4) ability to analyze and critically discuss different topics, and 5) if his/her analytical or critical conclusions were based on appropriate or justifiable data and techniques. Discussion is worth 25% of the course and some assignment questions will involve critical thinking.

Objective 3: Demonstrate effective communication skills.

Emphasis: SIGNIFICANT

Content

Writing and discussion will be used as vehicles to communicate students' ideas and opinions. Students will express, formulate, and apply the concepts covered in the course. This will be addressed through discussion, written assignments, a research paper, and an oral presentation.

Teaching Strategies

Through the different assigned activities, the instructor aims to improve the quality of written performance by giving feedback. For the stages leading to the final draft of the research paper,

the instructor will provide feedback and require revision. If the student needs additional help, he/she will be encouraged to attend writing tutorials offered at the University Writing Lab. Guidelines on how to participate effectively in discussions will be provided to the student at the beginning of the semester. As the semester progresses, students will become more familiar with the process and be more comfortable with participating. Students who prefer not to participate in discussions will be encouraged to prepare a one-to-two-minute talk about a topic related to the discussion. All students will be required to prepare a presentation, due towards the end of the semester, regarding the research papers.

Student Assignments

Brief written assignments, the 3-5 page research paper, class discussions, and the presentation are used to assess the student's oral and written communication skills:

Evaluation of Student Performance

Written assignments, discussions, and the different stages leading to the research paper and presentation are spread across the semester. All written work should show evidence of applying studied concepts to provide valid arguments. For the oral activities, students should participate in discussions in a respectful and productive environment. All students are required to prepare a presentation about their research topic; they will be assessed on clarity and cogency.

Objective 4: Demonstrate an understanding of human experiences and the ability to relate them to the present.

Emphasis: NOT EMPHASIZED

Objective 5: Demonstrate an understanding of various cultures and their interrelationships.

Emphasis: NOT EMPHASIZED

Objective 6: Demonstrate the ability to integrate the breadth and diversity of knowledge and experience.

Emphasis: SIGNIFICANT

Content

Cyber-technology is integrated in everyone's life. Although new technologies emerge and existing technologies evolve, many of the ethical issues associated with them are basically variations of existing ethical issues. However, many emerging technologies present us with challenges that do not fit easily into our conventional ethical categories. In the course we will discuss how those controversies can be analyzed from the perspective of standard ethical concepts and theories. In addition, since personal computers, laptops, cell phones, etc. play an important part of a student's life, it is important to explain what ethical issues relate to such usage. Students are also encouraged to discuss their personal, professional, cultural, and educational experiences with regard to using cyber-technologies.

Teaching Strategies

Substantial theoretical content will be discussed regarding cyber-technology-related ethical issues. The instructor will explain material, initiate students' discussions, and assign short-essay-question assignments. Case studies will be used to invoke students' own experiences. Students will choose cyber-technology ethics-related topics for their research and oral presentation and the instructor will guide them through the research process.

Student Assignments

Students will engage in several discussions and analyze case studies involving ethics-related scenarios, such as the use of nanotechnology, globalization, and outsourcing. Students will also select a topic, write a paper, and prepare a presentation on a cyber-ethics topic.

Evaluation of Student Performance

The discussion, case study assignments, and research paper will be evaluated according to how well students reasoned to reach to their conclusions. Therefore, technical content and correctness of methods used to reach conclusions will be evaluated. Students must also clearly relate this content to other case studies or their individual or public experience. The presentation will summarize their findings from their papers.

Objective 7: Demonstrate the ability to make informed, intelligent value decisions.

Emphasis: SIGNIFICANT

Content

The aim of the course is to place value on the individual's decision-making. The students are required to draw, when possible, an ethical, moral, and practical conclusion. When dealing with cyber-technology, such decisions involve well-being. Moral implications of activities are discussed and studied in the course, and students are required to make informed and intelligent decisions based on the different code of ethics and the case studies discussed.

Teaching Strategies

The instructor will explain how to apply foundational concepts and frameworks, such as ethical theory and critical thinking techniques to analyze specific cyber-technology-ethics issues examined later in the semester. The instructor will require reading and participation in different activities such as discussions, completion of short essay-question assignments, preparation of a presentation, and writing a research paper. The instructor will guide the students through the different stages.

Student Assignments

Students will be required to participate in weekly discussions, complete weekly short-essay question assignments, prepare an oral presentation, write a research paper, and take 3-4 exams.

Evaluation of Student Performance

In discussions and assignments, students should clearly state their opinion and draw from the content discussed in class as well as general documented knowledge from their own disciplines and experience. For example, the student should demonstrate that he/ she is able to relate case studies and a code of ethics to give a clear, well-thought-out decision or opinion. The student should demonstrate satisfactory performance on the exams, which demonstrates that he/she read the assigned material.

Objective 8: Demonstrate the ability to make informed, sensitive aesthetic responses.

Emphasis: NOT EMPHASIZED

Objective 9: Demonstrate the ability to function responsibly in one's natural, social and political environment.

Emphasis: NOT EMPHASIZED

X. BACKGROUND

The course is to be taught by an instructor who has expertise or background in computer science.

An instructor who does not have expertise or background in computer science would need to learn the following professional computer topics to effectively teach the course:

1. Introduction to computers and how they operate, development of programs, system security, software (program/programming) security, networking security, and discrete structures. These are covered in computer science programs, cyber security minors, and advanced networking courses.
2. How information is stored, used and exchanged. The use and the development of databases, which is dealing with information. These are covered in database courses.
3. Dealing with advanced topics such as virtual reality and intelligent user interfaces. These are covered in artificial intelligence courses.
4. Emphasis on the set of software engineering standards accepted by the professional community engaged in the software development process, as well as the technical standards for testing, designing, and developing quality software. These are covered in software engineering courses.

XI. CLASS SIZE

An optimal size is 20 students.