Module Code and Title: ITM301 Professionalism and Ethics in IT
Programme: BE in Information Technology
Credit: 12
Module Tutor: Yeshi Jamtsho
Module Coordinator:

General objectives:

In addition to technical skills, students must understand the social and professional context of information technology and computing, particularly the importance of adhering to ethical codes of conduct. The module covers the knowledge area of contemporary issues such as privacy, computer crime, ethics, intellectual property rights, reliability, and automation.

Learning outcomes:
On completion of the module, students will be able to:
1. Identify the relationships between computer ethics and society.
2. Discuss the history and development of contemporary computer technology.
3. Appreciate the impact of AI on society.
4. Evaluate the various ethical theories.
5. Critique several transnational issues concerning intellectual property.
6. Evaluate the legal, ethical, and privacy issues related to the IT domain within an organization.
7. Describe the nature of professionalism and its place in the field of information technology.
8. Apply professional codes of ethics to common issues found in IT and management situations.

Learning and teaching approach

	Approach	**Hours per Week**	**Total Credit Hours**
Contact	Lecture/Flipped Classroom	3	45
Independent study	Assignments	1	75
	Term Paper	2	
	Self-study	2	
	Total		120

Assessment approach:
Assessment components consist of **Continuous Assessment (CA) Theory - 60%** and **Semester-End Examination - 40%**. The CA Theory will consist of a Midterm Test (15%), two assignments (20%) and a security evaluation project (25%).

Assessments will be carried out continuously through the following assessment, and a semester-end examination:

A. Mid-term Test: (15%)

Students will take a closed book written exam of 1-hour duration covering topics up to the mid-point of the semester. The exam will be marked out of 10 marks. This will be converted to 10% while computing the total marks for the module.

B. Assignments: (20%)

Assignment 1 will be a short essay (of about 300 words) where each student writes about topics related to computing and/or communication technology that interest them and have social or

ethical implications. Assignment 1 will be out on the VLE in the second week. Students must submit it in the 3rd week through the VLE or a hard copy, along with a similarity report generated from a plagiarism checker software.
Assignment 2 will be an essay of about 500 words and each student has to write on any topic from the module which has changed the student's knowledge, awareness, interest, or opinion. Assignment 2 will be out on the VLE in the 12th week. Students must submit it in the 13th week through the VLE or a hard copy, along with a similarity report generated from a plagiarism checker software.

Each assignment will be marked out of 10 marks and will be evaluated based on the following criteria:

2	Content
2	Organization
2	Coherency
2	Clarity of writing
1	Sufficient reference
1	Word count

C. Term Paper: (25%)

Each student will undertake one term paper in a semester. Students are free to choose topics related to the module and investigate the topic from but not limited to the list provided. Detailed instructions will be provided on how to write a term paper separately. A term paper of about 1500 words will be submitted. Before the paper is evaluated, a similarity report with an acceptable score must be generated using the plagiarism-checking software. Students will have to follow the following timeline for the term paper:

- Week 6th: Topic and description are due.
- Beginning of 11th week: Paper due, to be read and critiqued by another student using VLE workshop activity.
- End of 12th week: Critiqued papers to be returned with comments.
- Beginning of the 14th week: Final paper with a similarity check report due.

The work will be assessed on the following criteria (25 mark):

2	Background or history
2	Presentation of issues and various points of view
4	Interview or other activity
8	Quality of argument and analysis (principles, examples, counterexamples)
3	Structure/Organization
3	Clarity of writing, sufficient references, sufficient length
3	Originality

D. Semester-end Examination: (40%)

There will be a 2-hour closed book examination that will cover all the subject matter. Two sets of question papers with key answers will be prepared and moderated for the Assessment and reassessment exam. The exam will be marked out of 40 marks.

Overview of the assessment approaches and weighting:

Areas of Assignments	Quantity	Weighting (%)

A. Mid-Term Test	1	15
B. Assignments	2	20
C. Term Paper	1	25
D. Semester-end examination	1	40
Total		**100**

Prerequisite: None

Subject matter:

Unit I: Introduction

1.1 Overview of the module
1.2 Technology: Advancement of computing, self-driving vehicles, Mobile Phones, Social Networking, IoT, e-commerce, Free Stuff, AI, robotics, sensors and motions
1.3 Unexpected developments: technology and change
1.4 AI and Society – Generative AI, Automation, Deep Fake, Copyright issues in Datasets

Unit II: Introduction to Ethics

2.1 Ethics and definition, scenarios of ethical application
2.2 Ethical Theories: Relativism, Ethical Egoism, Kantianism, Utilitarianism, Social Contract Theory, Virtue Ethics,
2.3 Bhutanese Ethics – Driglam Namzha
2.4 Workable ethical theory: evaluate ethical theories

Unit III: Intellectual Properties

3.1 Overview of Intellectual Property, IP rights, IP Protection – benefits and limits
3.2 IP Protection: trademarks, industrial designs, patents and copyrights (based on the Industrial Property Act of the Kingdom of Bhutan and the Copyright Act of the Kingdom of Bhutan), trade secrets
3.3 Fair Use, digital media, IP Protection Challenges, US Copyright laws, Software patent vs. copyright, Free Software

Unit IV: Privacy

4.1 Privacy: Evolution of concept, harms and benefits, privacy rights, privacy and trust
4.2 Information disclosures: public records, information held by private companies, Social Networking App, rewards or loyalty programs, body scanners, RFID tags, implanted chips, mobiles apps, automobile 'black boxes,' digital video recorders, cookies
4.3 Data mining: definition, opt-in vs. opt-out policies, data mining examples, Social Networking Analysis, "Anonymized" Dataset
4.4 Government systems: video surveillance, face recognition, public records – access vs privacy, National ID systems, Secret Intelligence gathering, Government Service Delivery
4.5 Protecting privacy: technology, markets, rights and laws

Unit V: Crime and Security

5.1 Hacking: hackers, penalties, selected incidents of hacking
5.2 Malware: Viruses, Worms, Cross-Site Scripting, Drive-by Downloads, Trojan Horses, Backdoors, Ransomware, Rootkits, Spyware & Adware, Bots & Botnets
5.3 Cybercrime: phishing, spear phishing, SQL injection, DoS & DDoS, cyberattacks

Unit VI: Errors, Failures and Risks

6.1 Errors in computer systems: data-related and software, effects of errors
6.2 System Failures: notable examples such as Patriot Missile, Ariane 5, Robot Missions to Mars, Denver International Airport,
6.3 Case study: Therac-25, Tesla Version 7.0, Uber Test-Vehicle Accident
6.4 Computer Simulations: uses and validating simulations
6.5 Increasing reliability and safety: professional techniques, law, regulation and markets

Unit VII: Automation and effects of digitalization

7.1 Employment: automation, job destruction, job creation, effects of an increase in productivity, the rise of robots
7.2 Workplace: organizational changes, telework, the gig economy, monitoring and multinational teams
7.3 Globalization: arguments for, arguments against, Dot-Com Bust Increased IT Sector unemployment, foreign workers, foreign competition
7.4 Digital Divide: global and social divide, critiques, technological diffusion, MOOC, Net Neutrality
7.5 "Winner-Take-All": harmful effects and reducing

Unit VIII: Professional Ethics

8.1 Professional, professionalism in IT, Professional Relationships, Licensing and Certifications, IT Users and ethical issues, Whistleblowing
8.2 Code of ethics: ACM Code, IEEE Code, IEEE/ACM Software Engineering Code
8.3 Social Media Policy of Bhutan, ICM Act of Bhutan 2018
8.4 AI Ethics – Deep fake, Generative AI, Self-Driving Car, Robots,

Reading List:

Essential Reading:

Quinn, M. J. (2020). *Ethics for the information age* (8th ed.). Pearson.

Baase, S., & Henry, T. (2018). *A gift of fire : social legal and ethical issues for computing technology* (5th ed). Pearson.

Additional Reading:

The Copyright Act of Kingdom of Bhutan, (2001). Retrieved: June 10, 2022. URL: https://www.moea.gov.bt/wp-content/uploads/2017/07/Copyright-Act-of-Kingdom-of-Bhutan-2001.pdf

The Industrial Property Act of Kingdom of Bhutan, (2001). Retrieved: June 10, 2022. URL: https://www.moea.gov.bt/wp-content/uploads/2017/07/Industrial-Property-Act-of-Kingdom-of-Bhutan-2001.pdf

Information, Communications and Media Act of Bhutan, (2018). Retrieved: June 10, 2022. URL: http://www.bicma.gov.bt/bicmanew/data/publications/act/BICM_Act_2018_English.pdf

Reynolds, G. W. (2019). *Ethics in Information Technology* (6th edCe). Cengage.

Kizza J. M. (2018). *Ethical and social issues in the information age*. Springer International PU.