IT 246: IT Ethics and Cybersecurity
(BIM 6th Sem)

Course Objectives

The main objective of this course is to provide knowledge of different concepts of ethics related to Information Technologies and cyber security. After completing this course, students will be able to

- Understand different concepts of ethics, and ethics for IT workers and IT organizations,
- Know intellectual property and related concepts and issues,
- Gain knowledge of threats, cybersecurity and digital forensics,
- Know the provision of cyber law in the context of Nepal.

Course Description

This course presents different concepts of IT ethics, cyber threats, cybersecurity, and digital forensics. This course also presents provision of cyber law in the context of Nepal.

Course Details

Unit 1: An Overview of Ethics **5 LHs**

Ethics; Ethics in the Business World; Corporate Social Responsibility; Fostering Corporate Social Responsibility and Good Business Ethics; Improving Business Ethics; Ethical Considerations in Decision Making; Ethics in Information Technology

Unit 2: Ethics for IT Workers and IT Users **5 LHs**

Managing IT Worker Relationship; Encouraging Professionalism of IT Workers; Encouraging Ethical Use of IT Resources among Users; Key Privacy and Anonymity Issues; Social Networking Ethical Issues

Unit 3: Intellectual Property **6 LHs**

Intellectual Property; Copyright; Patient; Trade Secrets; Intellectual Property Issues: Plagiarism, Reverse Engineering, Open Source Code, Competitive Intelligence, Trademark Infringement, and Cybersquatting

Unit 4: Ethical Decision in Software Development and Ethics of IT Organizations **5 LHs**

Software Quality and its Importance; Strategies for Developing Quality Software; Use of Contingent Workers; Outsourcing; Whistle-Blowing; Green Computing

Unit 5: Fundamentals of Cybersecurity **6 LHs**

Introduction to Cyberspace and Cybersecurity, Cybersecurity Perspectives, Key Development Areas and their impacts on the ever-evolving nature of Cybersecurity: Technological Changes, Economic Model Shifts, and Outsourcing, Risks Cybersecurity Mitigates, Common Cyberattacks, Poisoned Web Service Attacks, Network Infrastructure Poisoning, Technical Attack Techniques, Cyberattackers and Their Colored Hats.

Unit 6: Personal Cybersecurity **5 LHs**

Evaluating Your Current Cybersecurity Posture: Home Computer, Mobile Devices, Internet of Things (IoT) Devices, Enhancing Physical Security, Cybersecurity Considerations When Working from Home, Securing Your Accounts, Passwords.

Unit 7: Social Engineering and Cyber Terrorism **5 LHs**

Introduction, Need for Social Engineering, Reasons for Social Engineering Attack, Understanding the Implications, Building Trust, Exploiting the Relationship, Performing Social Engineering Attacks, Social Engineering Countermeasures, Preventing Social Engineering Attacks, Cyber Terrorism, Types of Cyber Terrorism, Effects of Cyber Terrorism in Infrastructure, Countering Cyber Terrorism.

Unit 8: Digital Forensics **7 LHs**

Introduction, Computer Forensic to Digital Forensics, Stages of Digital Forensic, Role of Digital Evidence, Methods and Lab, Collecting, Seizing and Protecting Evidence, Recovering Data, Mobile Forensics, Legal Aspects of Digital Forensics, Cyber Forensics in Nepal

Unit 9: Cyber Law in Context of Nepal **4 LHs**

Cyber Law in Context of Nepal, Legal Perspective of Cybercrime, Electronic Transaction Act, Electronics Transaction Rules, IT Policy, Information Security and Policies.

Laboratory Work

The laboratory work includes learning to use tools and techniques for cybersecurity and digital forensics. Special focus will be given to network scanning, sniffing, identify common vulnerabilities in web applications such as SQL Injection, XSS, phishing using social engineering toolkit lab, password cracking, firewall configuration and analysis Lab, incident response.

Suggested Readings:

Ethics in Information Technology, Sixth Edition, George W. Reynolds.
Ethics and Technology: Controversies, Questions, and Strategies for Ethical Computing, Fifth Edition, Herman T. Tavani, John Wiley and Sons, 2016.
Ethics for Information Age, Eighth Edition, Michael J. Quinn, Pearson.
Cybersecurity All-in-One for Dummies, Joseph Steinberg; Kevin Beaver; Ted Coombs; and Ira Winkler, 2023, 1st Edition, John Wiley & Sons, Inc
Cybercrime and Digital Forensics: An Introduction, Thomas J. Holt, Adam M. Bossler, Kathryn C. Seigfried-Spellar, 2022, 3rd Edition, Routledge
Electronic Transaction Act (ETA), Government of Nepal.
Electronic transaction Rule (ETR), Government of Nepal.
IT policy Of Nepal.