Course Objectives

In today's complex environment, e-commerce technology provides the solid foundation for effective management by integrating information systems, computing technology, business and communication with a secured channel. This course is intended to supply the students with an overview of the electronic commerce phenomenon currently sweeping through the global economy.

This course includes understanding of various elements of e-commerce with emphasis on the application of information technology issues as a business tool. The objective of the course is to enable the students to explore opportunity and potential impact of deploying electronic commerce strategies in business and consumer-related activities, including development and delivery of products and services in commercial markets. The course provides broad knowledge on e-commerce and in its managerial and entrepreneurial aspects.

Delivery of the course

The course would be a blend of understanding of e-commerce and its practical applications. The faculty member will serve a facilitator of learning encouraging contributions from all students for making comfortable and enjoyable.

Evaluation Scheme

In-Semester evaluation	20**
Viva and/or Practical	20
End-Semester evaluation	60
Total	100

** In-semester evaluation will be done based upon the assignments, quiz tests, case analysis, class tests, and midterms.

Detail Course Contents:

Unit 1:   **[14 hrs.]**

1.1 [7 hrs.]

Introduction to E-commerce, Technology and Business, E-commerce Vs E-Business, Related terminologies- E-Markets, M-commerce, U-commerce, Components of e-commerce transaction, Features of e-commerce technology (Ubiquity, Richness, Universal Standard, Global Reach, Interactivity, Information Density, Customization),

Types of E-commerce – Based on parties (B2B, B2C, C2C), Based on transaction types (Brokerage, Aggregator, Info-mediary, Community), Pure vs. Partial C-commerce,

The EC framework (Common Business Services, Messaging and Information Processing, Multimedia Content and Network Publishing, Information Superhighway), Essential EC process architecture (Access Control and Security, Profiling, and personalization, Search management, content

management, catalog management, payment, workflow management, event notification, collaboration and trading), EC success factors (selection and value, performance & service, look & feel, advertising and incentives, personnel attention, community relationships, security & reliability),

EC business models (transaction fee model, subscription model, advertisement model, affiliate model, electronic tendering systems, group purchasing),

Multimedia content for ecommerce, ecommerce and media convergence, technological factors for convergence (convergence of content, convergence of transmission, Convergence of information access devices), the anatomy of e-commerce application (EC consumer applications, EC organization applications)

1.2 [4 hrs.]

The network for electronic commerce: need of network, information super highway (I-way), market forces influencing the I-way, components of I-way: network access equipment (set-top boxes, digital switches, hubs, routers), local on-ramps, and global information distribution network, public policy issues shaping the I-way.

1.3 [3 hrs.]

The internet as a network infrastructure: introduction, the internet terminology, six stages of internet growth, NSFNET: architecture and components, (the NSFNET backbone, midlevel regional networks, state and campus networks, movement of information on the NSFNET), internet governance: the internet society (Governance Hierarchy, IETF Working Groups).

Unit 2: [23 hrs.]

2.1 [7 hrs.]

E-commerce security: (Client Server Security and Data & Transaction Security), Client-Server Network Security (Physical security holes, Software security holes, Inconsistent usage holes), Protection Methods (Trust-based, Security through Obscurity, Password Schemes, Biometrics), Security threats in client-server (Software Agents and Malicious Code Threats to Servers), Access Controls, Firewalls, Types of firewalls and network security, Security policies and firewall management.

Data & Message Security (Confidentiality, Integrity, Authentication), Mechanism for data & Message Security: Cryptographic approach (Traditional cryptographic approaches, Modern cryptographic approaches), Encrypted documents and electronic mail (PEM, PGP), Digital Signatures, Authentication System.

2.2 [4 hrs.]

Electronic Commerce & World Wide Web: Introduction, architectural framework for electronic commerce (Applications; Brokerage Services; data or transaction management; Interface and support layers; Secure messaging, security and electronic document interchanges; Middleware and

structures document interchange; and Network infrastructure and basic communication services), WWW as an architecture, Components of web (url, http, html), Hypertext vs. Hypermedia, Technology behind the web, Security in the web (Internet Data Categories, Introduction to Secure Socket Layer (SSL), Introduction to Secure HTTP, SSL vs. S-HTTP.

2.3 [6 hrs.]

Consumer Oriented Electronic Commerce: Introduction, consumer oriented applications (Personal Finance and Home Banking Management: Basic Service, Intermediate Service, Advanced Service, Home Shopping, Home Entertainment), Desirable characteristics of an electronic marketplace

Mercantile process models, Mercantile models from the consumer's perspective (Pre-purchase preparation, Purchase consummation, Post-purchase interaction), Mercantile models from the merchant's perspective (Order Planning and Order Generation, Cost Estimation and Pricing, Order Receipt and Entry, Order Selection and Prioritization, Order Scheduling, Order Fulfillment and Delivery, Order Billing ad Account/Payment Management, Post-sales services).

2.4 [6 hrs.]

Electronic Payment Systems: Introduction, Why Electronic Payment Systems, Requirements for c-payments (Atomicity, Goods Atomicity, Non-repudiation), Types of electronic payment systems – digital token based electronic payment systems: e-cash (Digital cash), Properties of e-cash (Monetary Value, Interoperability, Retrievability, Security), e-cheques, Smart cards and electronic payment systems, Smart credit cards systems, Smart Card Readers & Phones, Credit Cards, Credit Card with Encryption, Digital/Electronic Wallets

Risks and Threat on electronic payment system (Risks from Mistake and Disputes: Consumer Protection, Managing Information Privacy, Managing Credit Risk), Designing E-payment Systems (Privacy, Security, Intuitive Interface, Brokers, Database Integration, Pricing, Standards)

Unit 3:   [8 Hrs.]

3.1 [4 Hrs.]

Inter-organizational Commerce & Electronic Data Interchange (EDI): Introduction, EDI Layered Architecture, Benefits of EDI, EDI application in business (International trade and EDI: Role of EDI in International Trade, Financial EDI and Its types: Bank Checks, Interbank EFT), EDI: legal, security, and privacy issues: Legal Status of EDI Messages, Digital Signatures and EDI, EDI and electronic commerce (traditional, old, new, open)

3.2 [4 Hrs.]

The Corporate Digital Library: Introduction, Dimensions of electronic commerce systems: Basic Overview of Technological Architecture for Internal Commerce, Types of digital documents (Document Imaging, Structured Documents, Hypertext Documents, Active Documents), Issues behind document infrastructure (Document Constituencies Document Oriented Processes, Document Based Work flows), Corporate Data Warehouses, Types of Data warehouses, Advantages of Data warehouses.

Case Studies:

As a part of teaching learning behavior, students are encouraged to do number of case studies to get the real idea of ecommerce systems. The case study should cover the study of current market trends of ecommerce from local Nepali Market to the global one. Here are few concepts; however the instructors are free to provide their own cases.

- Case study of current Nepali upcoming ecommerce portals; Muncha.com, Hamrobazar.com, Thamel.com
- Case study of eBay.com, Amazon.com, Dell.com
- Case study of growing payment gateways/ e-payments in Nepal; Esewa.com.np, Paynepal.com, payway.com.np
- Case Study of global payment gateways; PayPal, Authorize.net, Google checkout
- Case Study of electronic payment systems like: Mondex Smart Cards, CyberCoins, Cybercash, Digicash, Coin.net, Microsoft Digital Wallet

Laboratory Works:

Students have to develop the ecommerce system simulating the client and merchant end. For that, students are highly encouraged to use the web development tools and techniques. However the realization of the ecommerce portal can be done through the use of various open source packages like OSCommerce, Magento.

References:

1. Frontiers of Electronic Commerce – Ravi Kalakota and Andrew B. Whinston – Pearson
2. E-commerce Business, Technology, Society – Kenneth C. Laudon, Carol G. Traver – Pearson
3. Cryptography & Network Security: Principles and practices, William Stalling
4. E-Commerce: A Managerial Perspective – P.T. Joseph – PHI
5. E-Commerce: Implementing Global Marketing Strategies, Bohdan

Tribhuvan University
Institute of Science and Technology
Model Question Paper

Bachelor Level/ Third Year/ Sixth Semester/ Science   Full Marks: 60

Computer Science and Information Technology   Pass Marks: 24

(CSC- 356 – Fundamentals of E-commerce)   Time: 3 hours.

Candidates are required to give their answers in their own words as for as practicable.

The figures in the margin indicate full marks.

Attempt all questions.

Section A

Illustrative Based Descriptive Questions:

Attempt all questions.   **(3x10=30)**

1. Define electronic commerce. Explain the anatomy of E-commerce process architecture.
2. Explain the Mercantile model from the merchant's perspective.
3. How four layers of EDI ensure transmission of message and data between the trading partners in economic transaction? Also mention the tangible benefits of EDI.

Section B

Reason Based Analytical Question.

Attempt all questions.   **(6x5=30)**

4. Illustrate and explain the components of the I-way.
5. Give following services/products, would e-commerce or traditional commerce work best? Give brief justifications to your answer.
   a. Browsing through new books
   b. Sale/purchase of shoes
   c. Sale/purchase of collectibles (trading cards, plants etc.)
6. Explain digital token based electronic payment system with major focus on F-cash and E-checks.
7. How digital documents enhanced business data processing? Mention the various types of digital documents.
8. How data and message security can be enforced e-commerce transaction?
9. Write short notes (any two)
   a. SSL vs. S-HTTP
   b. Types of E-commerce based on transaction types
   c. OTTP steps for online transactions