

Final Exam Topic Outline

- I. Enterprise Information Systems
 - a. Enterprise systems vs. inter-organisational systems
 - b. Value Chain Analysis
 - i. Definition
 - ii. Primary Activities
 - iii. Support Activities
 - iv. Information Systems role in value chain analysis
 - c. Supply Chain management Systems
 - i. Supply Chain concept
 - ii. Supply chain Management
 1. Objective
 2. Sources of SCM Systems
 3. Role of SCM in the Value Chain
 - iii. Supply Network
 1. Push-based vs. pull-based network
 - iv. Capabilities of SCM applications
 - v. SCM Benefits
 - d. Customer Relationship Management Systems (CRM)
 - i. Role of CRM in the Value Chain
 - ii. CRM Software capabilities
 - iii. Operational CRM Systems
 1. Sales force automation
 - iv. Analytical CRM Systems
 - v. Business Value of CRM systems
 - vi. CRM Performance measurement
 - vii. CRM Systems Portal
 - e. Enterprise Resource Planning systems
 - i. Definition
 - ii. Key Characteristics
 - iii. Architecture
 - iv. ERP capabilities
 - f. Implementing Enterprise Systems
 - i. Business value of enterprise systems
 - ii. Issues and challenges with implementing enterprise systems
 - iii. Strategy Considerations
 - iv. Selection factors for an enterprise system
 - v. Success factors for enterprise system implementation
 - g. ERP Related to Value Chain activities

- II. Systems that span organizational boundaries
 - a. Vertical area Systems
 - i. Definition of vertical area systems
 - b. Office automation systems
 - c. Geographic Information systems
 - i. Uses
 - d. Decision Support Systems
 - i. Definition and Characteristics
 - ii. Structured vs. Unstructured Decisions
 - iii. Common Decision Support Systems
 - iv. Components of a DSS
 - 1. Conceptual Model of a DSS
 - 2. User Interface
 - 3. DBMS
 - 4. Model base Systems
 - a. Examples
 - v. Model-Driven vs. Data-Driven DSS
 - vi. DSS and MIS
 - 1. Comparison of the two types of systems
 - 2. DSS examples
 - e. Expert Systems
 - i. Definition
 - ii. Knowledge vs. Information
 - iii. System Architecture
 - iv. Structure / Components of Expert Systems
 - v. Expert System Examples
 - f. Knowledge Management Systems
 - i. Knowledge Management Definitions
 - ii. Data → Information → Knowledge
 - iii. Workers and Communities of Practice
 - iv. Technology to support knowledge Management
 - g. Collaborative Information Systems
 - i. Definition
 - ii. Collaboration Technologies (Groupware)
 - iii. Group Support Systems
 - 1. Configuration
 - 2. Characteristics
 - 3. GSS Software
 - iv. GSS Alternatives
 - v. Collaborative Information Systems Examples

III. Introducing the computer

- a. Basic Workings of the computer
 - i. Basic Architecture
 - ii. CPU
 - 1. Clock Speed
 - 2. Arithmetic/Logic Unit
 - 3. Control Unit
 - 4. instructions for the CPU
 - a. Two parts of an instruction
 - b. How instructions are read by the CPU
 - iii. Main and External Memory
- b. Binary System
 - i. Bit
 - ii. Byte (Kilobyte, Megabyte, Gigabyte, Terabyte, Petabyte)
- c. ASCII System
- d. Programming a Computer
 - i. Machine language (First Generation)
 - ii. Assembly Language (Second Generation) – One-to-one
 - iii. Third Generation Language one-to-many
 - 1. Different Types of third generation Languages
 - iv. Fourth Generation Software
 - 1. Fourth Generation Languages
 - 2. Application Software
 - a. Types of application Software
 - 3. Procedural vs. non-procedural computing
 - 4. Algorithms
- e. System Software
 - i. Operating System
 - ii. Utility programs
- f. Computer Hardware
 - i. The Motherboard
 - 1. Parts of the motherboard
 - a. Ram
 - b. ROM
 - c. Buses
 - d. Expansion Cards
 - ii. Primary Storage
 - iii. Secondary Storage
 - 1. Magnetic Disk
 - 2. Tape
 - 3. Optical Disk
 - 4. Memory Sticks
 - iv. Input/output Devices
 - 1. Definition
 - 2. Types

- g. Classification of Computers
 - i. Supercomputers
 - ii. Mainframe computers
 - iii. Microcomputers
 - 1. Personal Computers
 - 2. Network Computers
 - 3. Portable Computers
 - 4. Handheld computers

IV. Telecommunications Literacy

- a. Definition and Importance of Telecommunications
- b. Telecommunications hardware
 - i. Modem
 - ii. Transmission Media
 - 1. Cables
 - a. Twisted Pair
 - b. Coaxial
 - c. Fiber Optic
 - 2. Wireless
 - a. Microwaves
 - i. Terrestrial Microwave
 - ii. Satellite Microwave
 - b. Wi-Fi
 - c. Near Field (NFC)
 - d. Bluetooth
 - 3. Bandwidth
- c. Speed of transmission
- d. Types of networked computing
 - i. Centralized Computing
 - ii. Distributed Computing
 - iii. Collaborative Computing
 - iv. Cloud Computing
- e. Types of Computer networks
 - i. Local Area Network (LAN)
 - 1. LAN Components
 - ii. Wide Area Network (WAN)
 - iii. Global Network
 - iv. Value-Added Network
- f. Networking Fundamentals
 - i. Servers and Clients
 - ii. Telecommunications Software

g. The Internet

- i. Packet Switching
- ii. Network Protocols
 1. TCP/IP
 2. IP Address
- iii. Internet Transmission Media
 1. Dial-up
 2. DSL
 3. TV Cable
 4. Satellite Connections
- iv. Connecting The internet
 1. Internet Service Provider
 2. Network Access Points
 3. Routers
- v. Uses of the Internet
 1. Telnet
 2. File Transfer Protocol
 3. VoIP
 4. Email
 5. Chat
 6. World Wide Web
 - a. Hypertext
 - b. HTML
 - c. Web Browser
 - d. Website
 - e. Web Address
 - i. DNS
 - ii. URL
 - f. Email address
 - g. Web Server
 - h. Web Session
 - i. Web Portals
 7. Search engines
 8. Intranets and Extranets

V. E-Business / E-Commerce Systems

- a. Internet and WWW capabilities
 - i. Information dissemination
 - ii. Transaction Support
 - iii. Integration
 - iv. Mass customization
 - v. Collaboration
 - vi. Interactive Communication

b. Network Computing Spectrum

i. LAN, Intranet

1. Architecture
2. Intranet Applications
 - a. Collaboration
 - b. Training
 - c. Application Integration
 - d. Real-time access
 - e. Online Information entry

ii. Extranet

1. Definition
2. Benefits
3. Electronic Data Interchange
 - a. Definition
 - b. Value-Added network
 - c. Virtual-private network
 - d. Standards
4. Extranet Applications
 - a. SCM
 - b. Procurement
 - c. Distribution
 - d. Real-time info access
 - e. Collaboration
 - f. Enterprise portals

c. e-Business

i. Definition of e-Business

1. Strategy and competitive Advantage
2. How to achieve Competitive advantage *MC

ii. Electronic Commerce

1. Types of E-commerce
 - a. B2C, B2B, B2E, C2C
2. E-Commerce Strategies
 - a. Brick & Mortar
 - b. Click & mortar
 - c. Click Only
3. Stages of Business to consumer transactions
 - a. E-information
 - b. E-integration
 - c. E-transaction
4. Rules for e-commerce success

iii. Internet Commerce

iv. Web Commerce

1. Web 2.0

v. M-Commerce

- vi. Establishing and e-commerce site
 - 1. Web Hosting Services
 - 2. Showing your e-business customer screen
 - 3. Outsourcing Web Operations
 - 4. Designing the website
- vii. Security
 - 1. General e-Business security considerations
 - 2. Denial of service attack
 - 3. Credit Card Fraud and data theft
 - 4. Backups and Disaster Recovery *MC
 - 5. Spyware, Spam and cookies
 - 6. Front & Back-end systems
 - 7. Viruses
 - a. Prevention steps for viruses

VI. Auditing of Information Systems

- a. Two types of auditors
 - i. External auditor
 - ii. Internal Auditor
 - 1. Functions, Definition
 - 2. Mandate of an internal auditor
 - 3. Internal Controls
 - a. General Controls
 - b. Controls for a specific System
- b. The Nature of auditing
 - i. Four-step Process
 - 1. Planning
 - 2. Collecting Evidence
 - 3. Evaluating Evidence
 - 4. Communicating Audit Results
 - ii. Purpose of the information systems audit
 - iii. Areas of Risk in an organization's information systems
 - 1. Overall (General)
 - a. Actual Risks (Examples)
 - b. Controls to counteract those risks
 - c. What an internal auditor does
 - 2. Storage of Data the has been input (data files)
 - a. Actual Risks (Examples)
 - b. Controls to counteract those risks
 - c. What an internal auditor does

VII. The development of Information Systems

- a. System Development Lifecycle
 - i. Description / Definition
 - ii. Processes
 - 1. System Investigation
 - a. Problem Definition
 - b. Feasibility study
 - i. Criteria For evaluating a project

2. System Analysis
 - a. System Analyst Functions
 - b. Collecting System Requirements
 - c. Diagraming System Requirements
 - i. Traditional Structured Way
 1. Data Flow Diagram
 2. Entity Relationship Diagram
 - ii. Object-Oriented Design
 1. Objects
 2. UML
 - d. Prescribed Diagrams
 - i. Use-case diagram
 - ii. Object class diagram
 - iii. Sequence Diagram
3. System Design
 - a. Definition
 - b. Process followed after system design
4. System Development
5. System implementation
 - a. Programming
 - b. Testing
 - c. Conversion Approaches
 - d. System Documentation
 - i. Documentation Types
 - e. System Training
6. System maintenance
 - a. Maintenance Types

VIII. Alternatives to Developing Information Systems

- a. Reasons for considering alternatives
- b. Three alternatives to Internal Development
 - i. End-user Development
 1. Definition
 2. Tools
 3. Benefits
 4. Pitfalls
 - ii. External Acquisition
 1. Steps
 - a. Identification, selection and planning
 - b. Analysis
 - c. Request for proposal
 - i. Definition
 - d. Proposal Evaluation
 - i. Creating and weighting evaluation criteria
 - e. Vendor Selection
 - iii. Outsourcing
 1. Reasons to consider
 2. Arrangement Types
 3. Managing the IS Relationship

- c. IS Consulting
 - i. Consulting Considerations
 - 1. Four Factors to examine (two examples in each stage)
 - a. The organization
 - b. Current IT Setup
 - c. Information needs
 - d. Immediate Systems Need

IX. Ethics and computer Crime

- a. Information Accuracy
 - i. Definition
 - ii. Sources of Information Errors
- b. The need for ethical behaviour
 - i. Definition and examples of ethical/ unethical behaviour
- c. Computer Crime
 - i. Definition
 - ii. Hacking vs. Cracking

X. Information System Function Within an organization

- a. Main Duties and Functions
- b. Organizational Structure
 - i. CIO Responsibilities
 - ii. Operations Division
 - iii. Development Division
 - iv. MIS Steering Committee
 - v. End-User Services (user support)
- c. Competencies of IS Professionals
 - i. Technical
 - ii. Business
 - iii. Systems

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