

ELECTIVES (Information Technology)

MBIT-530: System Analysis and Design

Credit : 3+0+0 = 3

Objective: The aim of the course is to familiarize the students with the process of gathering information, analyzing it and effectively using it in the development of the information systems.

Introduction to Information Systems Development: Systems Analyst, Role of System Analyst, concept of Systems Analysis and Design, Business Systems concepts, Systems Development Strategies, Implementation and Evaluation, Tools for Systems Development.

Structured Analysis: Concept of Requirements Determination, Fact-Finding Techniques, Tools for Documenting Procedures and Decisions, Structured English, Structured Analysis Development Strategy: Structured Analysis, Features of Data Flow Strategy, Developing Data Flow Diagrams, General Rules for Drawing Logical Flow Data Diagrams, Evaluate Data Flow Diagram for Correctness, Features of a Data Dictionary, Recording Data Descriptions.

The Analysis-to-Design Transition: Specifying Application Requirements- Objectives in Designing an Information System, What Features must be Designed, Design of Computer Output: How to Identify Computer Output Needs, How to Present Information, Design of Input and Control: What Concerns Guide Input Design?, Capturing Data for Input.

Design of Files: Basic File Terminology, Data Structure Diagrams- Purpose, Notation, Use in File Design, Types of Files, Methods of File Organization, Design of Database Interactions: Systems Development in a Database Environment.

Systems Engineering and Quality Assurance: Design Objectives, Program Structure Charts, Design of Software, Software Design and Documentation Tools, Managing Quality Assurance, Managing Testing Practices.

Managing System Implementation: Training, Conversion, Post implementation Review.

Suggested Readings:

1. Analysis & Design of Information Systems , James A. Senn , TMH
2. Systems Analysis & Design , Elias M. Awad , Galgotia.
3. Systems Analysis & Design , Roger Pressman , Tata McGraw Hill.
4. Modern Structured Analysis , Edward Yourdon , PHI.

MBIT-531: Electronic Business

Credit : 3+0+0 = 3

Objective: To acquaint the students with the Electronic Business concepts, issues and technologies.

Basics of E-Business: The Digital Era, History of the Internet, Evolution of E-Business, The Rise of E-Business, Traditional Business and E-Business, The Emergence Of Infomediaries, Principles of E-Business, E-Business Infrastructure, Organizational Culture for E-Business, E-Business Models.

E-Business Strategy: E-enabling the Value Chain, Basic Steps in E-Business Blueprint Planning, Integrating E-Business Processes, E-Business Execution Plan, E-Collaboration

E-Marketplaces: Evolution of E-Marketplaces, Phases of E-Marketplaces, E-Marketplaces Models, Strategies for E-Marketplaces, Benefits of E-Marketplaces, Success Factors for E-Marketplaces, Current Trends in E-Marketplaces.

E-Business Infrastructure: Network Infrastructure, Enterprise Network, Data Storage, Integration Tools for E-Business, E-Business Architecture. Data Communication Fundamentals, Communication Devices, Biometric Technologies, Wireless Technologies.

E-Procurement: Operating Resource Procurement, Procurement Business Problems and Guidelines to Integration Alternatives, Elements of Buy Side E-Procurement Solutions, Elements Of Sell Side E-Procurement Solutions, Implementing E-Procurement, Best Practices in E-Procurement.

Supply Chain Management and E-Business: Supply Chain Management: An Overview, E-Supply Chain, Managing Relationships in the E-Supply Chain, Issues in E-Supply Chain Management, The Future of the E-Supply Chain.

Enterprise Resource Planning: ERP: An Overview, Rationale for ERP, Enterprise Architecture Planning, Implementing ERP, Effect of ERP on the Company, Overview of ERP Modules, ERP Investments in the US.

Mobile Business: The Mobile Value Chain, Benefits of M-Business, Mobile Applications Infrastructure, M-Business Technologies, The Mobile Business Strategy, M-Business – Key Issues, Mobile Portals, M-Business Applications in Industries.

E-Marketing & CRM: The E-Revolution in Marketing, Database Marketing, New Age Database Marketing, Telemarketing, E-Marketing Strategies, Search engine optimization. Defining CRM, Functions of CRM, The E-CRM Architecture, E-CRM Infrastructure Requirements, CRM for E-Customers.

E-Business Applications: Conventional Payment Process, Electronic Payment System, Electronic Data Interchange, E-Business Application in Various Businesses.

E-Security: Cryptography, Public Key Infrastructure, Stored Account Payment System, Stored Value Payment System, Acceptable Use Policy, Security Threats, Protection against Identity Theft. Enterprise wide security.

Challenges in E-Business: Technological Challenges, Legal and Regulatory Framework, Behavioral and Educational Challenges, Other Miscellaneous Challenges.

Suggested Readings:

1. E-Business: Roadmap for Success, Dr. Ravi Kalakota, Marcia Robinson / Addison Wesley
2. Whiteley, David, E-Commerce: Strategy Technologies & Applications, TMH.
3. Frontiers of Electronic Commerce, Dr. Ravi Kalakota, Andrew Whinston / Wesley
4. ERP – A Managerial Perspective, S.Sadagopan / Tata McGraw-Hill
5. Taking Care of e-Business , Thomas Siebel M / The Currency Book
6. E-Commerce by Pete Loshin/Paul Murphy. Jaico Publishing House 3rd edition, 1999.

MBIT-532: Relational Database Management Systems

Credit : 2+0+1 = 3

Objective: The aim of the course is to provide a solid and practical foundation for the design, implementation and management of database systems.

Introduction to Database, Database Systems, Database Models, A Logical View of Data, Keys, Integrity Rules, Relational Database Operators, The Data Dictionary and the System Catalog, Relationships Within the Relational Database, Data Redundancy, Indexes

Structured Query Language: Introduction to SQL, Data Definition Commands, Data Manipulation Commands, Queries, Advanced Data Management Commands, Queries and SQL Functions, Updatable Views, Procedural SQL, General rules governing Relationships Among Tables

Transaction Management and Concurrency Control: Concept of a Transaction, Transaction Properties, Transaction Management with SQL, The Transaction Log, Concurrency Control, Concurrency Control– with Locking Methods, with Time Stamping Methods, with Optimistic Methods.

Distributed Database Management Systems: Concept, Evolution, Distributed Processing and Distributed Databases, DDBMS Components, Client Server Systems: Concept, features of Client/Server Systems, Client/Server Architecture, Client/Server Databases, Client/Server Implementation Issues

Database Security and Administration: Data as a Corporate Asset, The Need for and Role of Databases in an Organization, The Evolution of the Database Administration Function, The DBA's Managerial Role, The DBA's Technical Role.

Suggested Readings :

1. Database Systems: Design, Implementation and Management, Peter Rob, Carlos Coronel/ Thomson Course Technology, 5e
2. Database System Concepts, Silberschatz, Korth, Sudarshan/ Mc–Graw Hill
3. Database Management Systems , Ramakrishna and Gorke/ McGraw Hill
4. Fundamentals of Database Systems, Ramez Elmasri & Shamkant Navathe/Addison Wesley
5. Database Management Systems, Alexis Leon & Mathews Leon/ Leon Vikas

MBIT-533: Information Technology Strategy and Management

Credit : 3+0+0 = 3

Objectives: Organizational survival and/or efficiency are related to the ability to acquire and maintain excellent information about itself and competing organizations. Information treated as a resource for strategic planning and operational management has a value like other assets in the organization. This course will explore necessary management actions, which will ensure that information is available, correct, protected, and archived in proper forms. Information technology professionals need to acquire business skills to compliment their traditional technical skills. We will learn how these business skills can be applied effectively to cut Information Systems costs and improve the quality without reducing services

The Challenges of Managing Information Systems and Technology

IT and Strategy, The role of IT in contemporary organizations, IT as a critical corporate resource, Business value of IT, components of IT management, realization of the stakeholders responsible to create IT success.

Strategic Information Systems Plan: IT Strategy and Organization Strategy

IT and organizations, IT planning, Making the case for IT, IT strategy and execution, the need for and development of an IT Strategic Plan, management's role in providing IT value and success; key involvement initiatives and monitoring activities, successful IT plans, involvement of top management.

Chief Information Officer (CIO) and The Information Services Resource

Organizing and Leading the IT Functions, Organizational Issues in the Control of IT Activities, key skills, traits, levels of experience enabling the CIO to be successful, CIO Reporting Model, IT staffing, organizing IT and risk management

Ensuring IT productivity and high quality performance through use of best practices: Quality and Productivity Process, such as CMU's Capability Maturity Model CMMi, ITIL, and ISO 9001-2000.

Organization and IT Security Management Processes: Assuring Reliable and Secure IT Services, vulnerabilities and exposure to high risk, policies, processes, technologies, and people needed to be in place to enable IT security

Information Technology Acquisition, Vendor Relationships and Contract

Negotiation : Managing Diverse IT Infrastructures, IT procurement, managing vendor relationships, service level agreements (SLA's), the necessity of using a structured, controlled approach to selecting hardware, software or consulting services, on-time, on budget implementation.

Information Asset Controls, Data Center Management, and IT Outsourcing: Managing IT Outsourcing, how IT is audited to ensure information assets are accurate and are protected, Critical assessment of sourcing IT support and technology.

Project Management A Portfolio Approach to Managing IT Projects
A Portfolio Approach to Managing IT Projects, best practices for project management and IT leadership, creating appropriate business relationships with each provider of IT services.

Disaster Planning, (Business Continuity Planning): The critical need of a detailed, formal business recovery plan.

Suggested Readings:

- 1 Linda M. Applegate, Robert D. Austin, and F. Warren McFarlan, Corporate Information Strategy and Management Text and Cases, 7th Edition,
- 2 Schwalbe, K. *Information Technology Project Management*, Course Technology, 4th edition, 2005
- 3 Weill, P., and Ross, J. *IT Governance*, Harvard Business School Press, 2004
- 4 Broadbent, M and Kitzis, E. *The New CIO Leader: Setting the Agenda and Delivering Results*, Harvard Business School Press, 2004 (Summary Only)
- 5 Carr, N. *Does IT Matter?*, Boston, MA: Harvard Business School Press, 2004.

MBIT-534: Data Communication and Computer Networks

Credit : 3+0+0 = 3

Objective: This course acts as a general introductory course on Network Structures, Forms, Types and Technologies within the context of business applications and management issues.

Basics of Data Communication- Digital, Analog, Synchronous, Asynchronous, Parallel, Serial, Simplex, Semi-Duplex, Full Duplex Communication, Multiplexing, Modem, Communication Hardware & Software

Communication Channels – Wired Transmission, Telephone Lines, Coaxial Cable, Microwave, Infrared, Laser, Radio communication, Satellite Communication, Fiber Optics, Switching Techniques – Circuit, Message, Packet, Network Topologies – Bus, Ring, Star, Mesh, Hybrid, Application of Data Communications – Information Search & retrieval, Information Transmission, Multimedia

ISO – OSI seven layer communication protocol, Local Area Networks – Private, Value added, Integrated Services Digital Network, IEEE 802 Network Architecture, CSMA/CD, Token Ring, Token Bus protocols, LAN Components – Work Station, File Server, Gateway, Network Interface Unit, Active Hub, Passive Hub, LAN Cables, Network Operating Systems.

Wide Area Network – Private Networks, Public Networks, Virtual Private Networks, X.25 Protocol, WAN applications, Client Server Network, File servers, Print server, Database Server, Communication Server, Routers, Asynchronous Transfer Mode

EDI- what is EDI?, advantages of EDI, EDI strategy for competitive advantage, EDI Components, EDI services, EDI administration, Network protocols – SMTP, NETBIOS, GOPHER, VERONICA, ARCHI, Wide Area Information Servers, PING etc.

Security in Computer Networks – Network Security, Secure Communication, Network Security Considerations in Internet, Firewalls, Principles of Cryptography – Symmetric Key, Public Key Encryption, Authentication, Integrity, Digital Signature, Network Management

Internet Services – Electronic Mail, Remote Log in – TELNET, FTP, Bulletin Board Services, Browsing – WWW, HTTP, URL, MOSAIC, Automated search, Common Gateway Interface, Common Search Engines.

Suggested Readings:

1. Computer Networking – James F Kurose & Keith W Ross, Addison Wesley, 2004
2. Data Communications and Networking – 3rd Edition, Forouzan, Tata McGraw Hill
3. Business Data Communications – Behrouz A Forouzan, Tata McGraw Hill
4. Computer Networks-Protocols, Standards & Interfaces-Black, PHI
5. The Internet Book – Douglas E Comer,

MBIT-535: Decision Support Systems

Credit : 3+0+0 = 3

Objective: This course aims at providing the students with a basic overview of Decision Support systems and their design.

Decision Support System : Decision Concept-steps-Decision Support System-Components-Characteristics-Classification & Application.

Model Management: Models – Modeling Process – Types of Models – Optimisation – Simulation – Heuristic – Descriptive – Predictive – Model base – Modeling Languages – Model Directory – Model Base Management System – Model Execution, Integration and command processing – Model Packages.

Data Management Systems: Database – Sources of Data – Data Directory – Data Structure and Database Languages – Query Facility – Data Management System – DBMS as DSS Development Tool.

Dialog Management: User Interface – Graphics – Multimedia – Visual Interactive Modeling – Natural Language Processing – Speech Recognition and understanding – Issues in user interface.

Development Of Decision Support System: Development process – Software and Hardware and Data Acquisition – Model Acquisition – Dialog Development – Integration – Testing and Validation – Training and Implementation.

Suggested Readings:

- 1 Efraim turban and Jay E Aronson, 'Decision Support Systems and Intelligent Systems', Prentice Hall International, 1998
- 2 Janakiraman V.S. and Sarukesi. K. 'Decision Support Systems', Prentice Hall of India, 1999
- 3 Lofti, Decision Support system and Management, McGraw Hill Inc., International Edition New Delhi, 1996
- 4 Marakas, 'Decision Support System', Prentice Hall International Paper back Edition, Delhi 1998

MBIT-536 : Enterprise Resource Planning & Business Process Reengineering

Credit : 2+0+1 = 3

Objective: The objective of the course is to make the students understand the concepts underlying ERP. It provides an in depth, clear understanding of business processes and how ERP helps in reengineering these processes. The course also provides an overview of the emerging areas in IT applications.

Business Process and Reengineering: Introduction to Business Process, Salient Features and Stages of Reengineering, Reengineering Initiatives, Forms of Reengineering, What is Business Engineering? Significance and Principles of Business Engineering, Business Process Reengineering (BPR), Features of BPR, Problems of Functional Division, Technology as Process Enabler, Mapping an Existing Process, Process Redesign and New Process Validation, Business Engineering with Information Technology.

Approaches to Process Improvement: Managerial Implications of Process Reengineering Efforts, Reengineering Roles, Kaizen, Total Quality Management, Implementing New Process, Critical Success Factors for Reengineering Projects, Reasons for BPR Failure, Comparing BPR with TQM.

Enterprise Resource Planning: Accommodating Variety, Integrated Management Information, Seamless Integration, Resource Management, Integrated Data Model, Scope, Technology, Benefits of ERP, Evolution, ERP Revisited, ERP and the Modern Enterprise.

Business Modelling for ERP: Building the Business Model, Extended ERP.

ERP Implementation: Role of Consultants, Vendors and Users, Customization, Precautions, ERP: Post-Implementation Options, ERP Implementation Methodology, Guidelines for ERP Implementation.

ERP Market: ERP and the Competitive Strategy, Market Dynamics and Competitive Strategy, MFG/PRO, IFS/ Avalon- Industrial and Financial Systems, Baan IV, SAP, SAP R/3 Applications, Example of an Indian ERP Package, The Arrival of ERP III.

Suggested Readings:

1. Enterprise Resource Planning- Concepts and Practice, 2e, PHI/ Vinod Kumar Garg, N. K. Venkitakrishnan
2. Enterprise Resource Planning, TMH/ Alexis Leon
3. Concepts in Enterprise Resource Planning, Thomson Course Technology/ Brady, Monk, Wagner