

## SEMESTER - 3

### INFORMATION SYSTEMS AND IT AUDIT [BML-303]

#### INTRODUCTION

This course deals with management of security of the systems, and is designed to focus on tools and techniques of information systems and application of knowledge to I.T. Audit.

#### OBJECTIVE

To provide the students with a detailed knowledge of Information System and I.T. Audit to enabling them to:

- design and develop information system to improve the performance of organisations, and
- apply conceptual approach of information systems to I.T. Audit.

#### OUTCOMES

On completion of this course, students should be able to:

- understand E-Business and E-Commerce.
- learn management of IS operations.
- learn basic data management skill.
- understand management of auditing information system.
- demonstrate an understanding of the complexity of managing security in electronic systems,
- identify and assess the critical threats to information systems,
- perform preliminary security audit of information systems and apply skills to a security incident, and
- apply the most effective information systems audit, control and security practices.

#### INDICATIVE GRID

PART	SYLLABUS CONTENT AREA	WEIGHTAGE
<b>A</b>	<b>INFORMATION SYSTEMS</b>	<b>50%</b>
	1. Emerging Technology in E-Business	
	2. Infrastructure and Operations	
	3. Information and Databases	
<b>B</b>	4. Systems Acquisition / Development Process	<b>50%</b>
	<b>IT AUDIT</b>	
	5. The Process of Auditing Information System	
	6. Governance and Management of IT	
	7. Auditing Infrastructure and Operations	
	8. Auditing Systems Acquisition / Development Process	
	9. Information Security Management	
10. Business Continuity and Disaster Recovery		
<b>TOTAL</b>		<b>100%</b>

**Note:** The weightage shown against each section indicates, study time required for the topics in that section. This weightage does not necessarily specify the number of marks to be allocated to that section in the examination.

#### CONTENTS

##### PART – A

##### INFORMATION SYSTEMS

#### 1. Emerging Technology in E-Business

- E-Business and E-Commerce;
- E-Business Models (B2B, B2C, B2E, B2G, G2C & C2C,E2E)
- E-Commerce Architecture, and Risks
- Advantages and disadvantages of E-Commerce for Businesses
- EDI (definition, component ,advantages and disadvantage)
- E-Business Software (SCM, ERP & CRM) (definition, component, advantages and disadvantage)

#### 2. Infrastructure and Operations

- Management of IS Operations
- IT Service Management
- Change Management Process
- Computer Hardware Components and Architectures
- Capacity Management
- Problem management
- Operating Systems
- Network Architecture (LAN, WAN & Wireless)
- LAN , WAN & wireless devices
- OSI layers
- Network Media
- Data management and monitoring

#### 3. Information and Databases

- What is a data-base
- Data modelling
- Types of data-bases
- The roles of a data-base management system
- Data as a resource
- Importance of models& ERD
- Database access techniques
- Information systems categories
- Office automation systems
- Communication systems
- Transaction processing systems
- Decision support system
- Management information system
- Executive Information system
- Enterprise systems
- Limitation
- Uses of information systems Categories
- DSS categories

#### 4. System Acquisition / Development Process

- Approach(Waterfall, spiral, interactive, prototyping)
- Phase of SDLC (Investigation and feasibility study)
- Requirement Analysis and initial Design
- Detailed design specification / documentation
- System installation / implementation & maintenance
- Project Management
- Project Planning
- Project Control Methods and Standards

**PART – B**  
**I.T. AUDIT**

**5. The Process of Auditing Information Systems**

- Audit Mission and Planning
- Role and responsibilities of Internal, external and IT Auditors,
- Risk Assessment and Analysis
- Risk based Audit Approach
- Compliance and substantive testing
- Internal Controls and their types, objectives and procedures.
- Performing an IT audit
- CAATs
- Control self assessment.

**6. Governance and Management of I.T**

- Corporate and IT Governance
- IT Governance Frameworks
- Roles and Responsibilities of Senior Management, Steering Committee & Chief Information Officer
- Policies and Procedures
- Human Resource Management
- Sourcing Practices
- Change Management
- IS Roles and Responsibilities
- Segregation of duties and Controls within IS.
- Auditing IT Governance, Structure and Implementations.

**7. Auditing Infrastructure and Operations**

- Hardware review
- Operating Systems Reviews
- Database, local area network, network operating, control and information system operations reviews
- Lights-Out Operations
- Application controls and their objectives
- File creation;
- Data Conversion
- Input and output
- Problem management reporting reviews
- Hardware availability
- Utilizing reporting and scheduling reviews.

**8. Auditing Systems Acquisition / Development process**

- Risk of inadequate system development life cycle (SDLC) and review of development procedures and methodologies
- Review of acquisition process for outsourcing
- information system maintenance practices
- Change management
- library control software
- Review of the practice of project management tools and techniques.

**9. Information Security Management**

- Importance of Information Security Management
- Understanding of Facilities (Data centres, outsourced facilities, Storage, media libraries, backup vaults, UPS & Disaster recovery sites)
- Antivirus Software Implementation Strategies
- Program and Data security techniques,
- Monitoring and surveillance techniques
- Environment Controls
- Smoke detectors
- FIRE Suppression Access management controls
- Physical design and access controls
- Logical Access controls (user authorization matrix & Password managements / password change procedures)
- Network security (encryption, firewalls), (,and Humidity / Temperature)
- Media Sanitization
- Auditing Information Security Management

**10. Business Continuity and Disaster Recovery**

- Defining a Disaster
- BCP and DRP
- BCP Process
- Business Continuity Policy and Planning
- Incident Management
- Business Impact Analysis
- Development of BCP
- Insurance
- Plan Testing
- Auditing Business Continuity.

**TEACHING METHODOLOGY:** The faculty is advised to teach the topics in the mode of case studies based on knowledge and application with practical approach.

**RECOMMENDED BOOKS**

CORE READINGS		
TITLE	AUTHOR	PUBLISHER
Information Systems: The Foundation of E-Business	Steven Alter	Prentice Hall / Pearson / Financial Times
Decision Modelling with Microsoft Excel	Jeffrey H. Moore / Larry R. Weatherford	Prentice Hall / Pearson / Financial Times
CISA Review Manual	CISA	Information Systems Audit and Control Associations, Inc.
ADDITIONAL READINGS		
Introduction to Information System	James O' Brien	McGraw-Hill
Practical IT Auditing	Jack Champlain	Warren Gorham & Lamont RIA Group