MANAGERIAL LEVEL-1

M3 – MANAGEMENT INFORMATION SYSTEM

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.

LEARNING OUTCOMES

Upon completion of this course, students will be able to:
- Understand the complexity of managing security in electronic systems;
- Identify and assess the critical threats to information systems;
- Get acquainted with the process of auditing information systems;
- Apply adequate information technology governance and management in IT audit of businesses;
- Perform preliminary security audit of information systems and apply skills to a security incident;
- Apply the most effective information systems audit, control and security practices;

INDICATIVE GRID

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

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.

DETAILED CONTENTS

PART – A
INFORMATION SYSTEMS (IS)

1. **Emerging Technology in E-Business**
   - Definition of the EDI, E-Business and E-Commerce,
   - E-Business Models (B2B, B2C, B2E. B2G, G2C & C2C),
   - Introduction to E-commerce Architecture, E-Commerce Risks,
   - Advantages of E-commerce for businesses,
   - E-Business Software (SCM. ERP & CRM).
   - Artificial Intelligence and its importance in Finance, Accounts, Taxation and IT Audit

2. **Infrastructure and Operations**
   - Management of IS Operations,
   - IT Service Management (systems, networks and supplies)
   - Change Management Process, (best practices to reduce risks)
   - Computer Hardware Components and Architectures, (CPU, Devices and Media)
   - Capacity Management (monitoring, scheduling, upgrading)
   - Operating Systems, (functions and types)
   - Computer Networks (Categories, Topologies, Architecture and Types)
   - Basics of Cloud Computing

3. **Information and Databases**
   - What is a data-base?
   - Data modelling; (DFD, ERD)
   - Types of databases; (Introduction only)
   - The roles of a data-base management system;
   - Data as a resource;
   - Data warehousing and Business analytics
   - Importance of models.
   - Information systems categories;
   - Office automation systems;
   - Communication systems;
   - Decision support systems;
   - Enterprise systems;
   - Limitations
   - Uses of information systems categories

4. **Systems Acquisition / Development Process**
   - Approaches (Waterfall, spiral, Agile and Scrum, prototyping),
   - Phases of SDLC (Investigation and feasibility study),
   - Requirements analysis and initial design.
   - Detailed design specification/ documentation.

- System installation/ implementation & maintenance),
- Project Management. (PM Triangle)
- Project planning. (PERT, CPM, intro. Importance of PM software)
- Project control methods and standards (Introduction of PERT, PRINCE, ISO 21500, CMM)

PART – B
IT AUDIT

5. The Process of Auditing Information Systems
- Definition of IT Audit and Types of Audit
- 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, (Procedure)
- CAATs,
- Control self assessment.

6. Governance and Management of IT
- Corporate and IT Governance,
- IT Governance Frameworks,
- Roles and responsibilities of senior management
- Steering committee & chief information officer,
- Policies and procedures,
- Sourcing practices, (Introduction, Advantages, Limitations)
- 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;
- Data-base local area network, network operating,
- Control, 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 reviews, 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
- Process of carrying out change in software
- Library control software, review of the practice of project management tools and techniques

9. Information Security Management (ISM)
- Importance of ISM,
- 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 System 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
- Recovery sites, database backup/recovery methods, application backup/recovery methods

CORE READINGS		
Title	**Author**	**Publisher**
CISA Manual	CISA	Information Systems Audit and Control Associations, Inc.
Information Systems: The Foundation of E-business	Steven Alter	Prentice Hall / Pearson / Financial Times
ADDITIONAL		
Introduction to Information System	James O' Brien	McGraw Hill