GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATIONS

Programme	Master of Computer Applications	**Branch/Spec.**	Computer Application
Semester	III	**Version**	1.0.0.0
Effective from Academic Year	2023-24	**Effective for the batch Admitted in**	June 2022
Subject Code	P13A5ISA	**Subject Name**	Fundamental of Information Systems Audit

Teaching scheme						**Examination scheme (Marks)**			
(Per week)	**Lecture (DT)**		**Practical (Lab.)**		**Total**		**CE**	**SEE**	**Total**
	L	TU	P	TW					
Credit	2	0	2	0	2	Theory	40	60	100
Hours	2	0	4	0	4	Practical	20	30	50

Objective:

- To understand how information systems can be audited and how to make the audit report.

Pre-requisites:

- Basic knowledge of information system assets, risk, threat, vulnerability management

Course Outcomes:

- **1 = Slight (Low); 2 = Moderate (Medium); 3 = Substantial (High); "-" = No Correlation**

Name of CO	Description
CO1	Analyze fundamental concepts of vulnerabilities, threats, and risks in information systems.
CO2	Apply appropriate security controls and countermeasures to protect organizational information assets.
CO3	Evaluate and implement an ISO/IEC 27001-based Information Security Management System (ISMS) to manage organizational security risks.
CO4	Conduct information security audits using standard techniques and compile comprehensive audit reports.

Mapping of CO and PO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	1	3	2	1	1	1	1	1
CO2	1	2	3	3	2	2	3	2
CO3	1	2	3	-	2	3	2	2
CO4	1	2	-	2	2	2	2	1

Content:

Unit	SECTION – I	Hrs

1	**Process of Information System Audit** Risk based Audit methodology: what is vulnerability, threat and Risk, types of Risk: Inherent risk, Residual risk, Detection risk, Control risk, Audit risk. Risk Response Methodology: Mitigate, accept, avoid, transfer, Audit Charter: Purpose and benefits of audit charter, Audit sampling: types of sampling, statistical sampling, non-statistical sampling, attribute sampling, variable sampling, stop-or-go sampling, discovery sampling. Audit Evidence collection technique: Review organization structure, Review IS policies, processes and standards, observations, Interview technique, Re-performance, Process walkthrough. Phases of Information System Audit: Planning, Execution and Reporting	**8**
2	**Information Asset Protection** Access controls: Physical and logical, Mandatory access control, discretionary access control, Role-based access control, Rule-based access control, Introduction to biometric verification: accuracy measures for Biometrics, false acceptance rate, false rejection rate, Equal error rate, Biometric-attacks, Firewall types and implementation, Intrusion detection system and Intrusion prevention system, Digital signature, symmetric and Asymmetric encryption, public key infrastructure, Fire suppression system	**7**
	SECTION – II	
3	**Introduction to Information Security Management Systems-ISO/IEC 27001:2022** Introduction to information security framework, Introduction to standard ISO 27001, clauses and controls, steps for implementing ISO 27001: existing control assessment, gap analysis, Policy and procedure documents, internal audit activity. Introduction to certifying body PECB, BSI, TUVSUD, how to become a lead Auditor.	**7**
4	**Information Security Audit Tasks, Reports and Post Auditing Actions:** Pre-audit checklist, Information Gathering, Vulnerability Analysis, External Security Audit, Internal Network Security Audit, Firewall Security Audit, IDS Security Auditing, Social Engineering Security, Web Application Security Auditing, Auditing desktop securities, Information Security Audit Deliverables & Writing Report.	**8**

Practical Content:	
List of programs specified by the subject teacher based on above mentioned topics.	
Text Books:	
1	The Beginner's Guide to Information System Audit by Hemang Doshi and Hiral Patel Publisher:Notion Press 1st Edition 2022.
2	CISA exam study guide by Hemang Doshi Publisher : Packt Publishing Limited) 21August 2020(.
Reference Books:	
1	Assessing Information Security (strategies, tactics, logic and framework) by A Vladimirov, K.Gavrilenko, and A. Michajlowski Publisher : IT Governance Publishing) 11April 2016(.
2	CISA – Certified Information Systems Auditor Study Guide: Aligned with the CISA Review Manual 2019 to help you audit, monitor, and assess information systems
3	ISO 27001 Handbook: Implementing and auditing an Information Security Management System in small and medium-sized businesses by Cees Van Der Wens Publisher : Independently Published) 24December 2019(.
MOOC/Certification Courses:	
1	edx course for Network Security: https://courses.edx.org/course_modes/choose/course-v1:RITx+CYBER504x+1T2023/
2	Udemy course: https://www.udemy.com/course/information-system-audit/
3	Udemy Course: https://www.udemy.com/course/certified-in-information-system-audit/

Question Paper Scheme:

University Examination Duration: 3 Hours

Note for Examiner: -

(I) Questions 1 and 4 are compulsory with no options.

(II) Internal options should be given in questions 2, 3, 5 and 6.

SECTION – I

Q.1 –8 Marks

Q.2 –11 Marks

Q.3 –11 Marks

SECTION - II

Q.4 –8 Marks

Q.5 –11 Marks

Q.6 –11 Marks