Class: T.Y.B.Sc. (I.T.) – Semester VI
Subject: Software Quality Assurance
Name of the Faculty: Prof. Supritha Bhandary

Month	Topics to be Covered	Internal Assessment	Number of Lectures
DEC	**Introduction to Quality**: Historical Perspective of Quality, What is Quality?, Definitions of Quality, Total Quality Management ,Principles of Total Quality Management, Continual (Continuous) Improvement Cycle, Quality in Different Areas, Problem Solving Software Tools,		16
JAN	**Software Quality**: Introduction, Constraints of Software Product Quality Assessment Quality and Productivity Relationship, Software Development Process, Types of Products, Pillars of Quality Management System. **Fundamentals of testing:** Necessity of testing, Misconceptions about testing, testing methodologies, Unit Testing: Boundary Value Testing, Random Testing, Class Testing, Decision Table–Based Testing: Decision Tables, Decision Table Techniques, Cause-and-Effect Graphing, Guidelines and Observations, Path Testing: Program Graphs, DD-Paths, Test Coverage Metrics, Basis Path Testing, Guidelines and Observations,		22
FEB	**Software Verification and Validation**: Introduction, Verification, Methods of Verification, Types of reviews, Verification and validation activities. **V-test Model**: Testing during Proposal stage, Testing during requirement stage, Testing during test planning phase, design phase, during coding, VV Model, **Levels of Testing**: Proposal Testing, Requirement testing, Big-Bang Testing **Special Tests:** GUI Testing, Volume Testing, stress Testing		18
Mar	Software Verification and Validation smoke testing, Web Application Testing, COTS testing, Adhoc Testing, eBusiness ecommerce Testing.		04

Sign of Faculty　　　　　　　　　　　　　　　　**Sign of Coordinator**

Month	Topics to be Covered	Internal Assessment	Number of Lectures
DECEMBER	**Unit I** **Information Security Overview**: The Importance of Information Protection, The Evolution of Information Security, Justifying Security Investment, Security Methodology, How to Build a Security Program, The Impossible Job, The Weakest Link, Strategy and Tactics, Business Processes vs. Technical Controls. **Risk Analysis**: Threat Definition, Types of Attacks, Risk Analysis. **Secure Design Principles**: The CIA Triad and Other Models, Defense Models, Zones of Trust, Best Practices for Network Defense. **Unit II** **Authentication and Authorization**: Authentication, Authorization **Encryption**: A Brief History of Encryption, Symmetric-Key Cryptography, Public Key Cryptography, Public Key Infrastructure.		12
JANUARY	**Unit II** **Storage Security**: Storage Security Evolution, Modern Storage Security, Risk Remediation, Best Practices. **Database Security**: General Database Security Concepts, Understanding Database Security Layers Understanding Database-Level Security, Using Application Security, Database Backup and Recovery, Keeping Your Servers Up to Date, Database Auditing and Monitoring. **UNIT III:** **Secure Network Design**: Introduction to Secure Network Design, Performance, Availability, Security. **Network Device Security**: Switch and Router Basics, Network Hardening. **Firewalls**: Overview, The Evolution of Firewalls, Core Firewall Functions, Additional Firewall Capabilities, Firewall Design. **Wireless Network Security**: Radio Frequency Security Basics, Data-Link Layer Wireless Security Features, Flaws, and Threats, Wireless		24

	Vulnerabilities and Mitigations, Wireless Network Hardening Practices and Recommendations. **UNIT IV:** **Intrusion Detection and Prevention Systems**: IDS Concepts, IDS Types and Detection Models, IDS Features, IDS Deployment Considerations, Security Information and Event Management (SIEM).		
FEBRUARY	**UNIT IV:** **Voice over IP (VoIP) and PBX Security**: Background, VoIP Components, VoIP Vulnerabilities and Countermeasure, Telecom Expense Management. **Operating System Security Models**: Operating System Models, Classic Security Models **UNIT V:** **Virtual Machines and Cloud Computing**: Virtual Machines, Cloud Computing. **Secure Application Design**: Secure Development Lifecycle, Application Security Practices, Web Application Security, Client Application Security, Remote Administration Security. **Physical Security**: Classification of Assets, Physical Vulnerability Assessment, Choosing Site Location for Security, Securing Assets: Locks and Entry Controls, Physical Intrusion Detection.		20

Sign of Faculty   **Sign of Coordinator**

M.L.Dhanukar College of Commerce

Teaching Plan: 2023 - 24

Department: BScIT   **Semester: VI**

Class: F.Y.BScIT Div: A and B

Subject: Business Intelligence

Name of the Faculty: Mrs. Snehal Borade

Month	Topics to be Covered	Internal Assessment	Number of Lectures
December	**Unit 1:-**Business intelligence: Effective and timely decisions, Data, information and knowledge, The role of mathematical models, Business intelligence architectures, Ethics and business intelligence Decision support systems: Definition of system, Representation of the decision-making process, Evolution of information systems, Definition of decision support system, Development of a decision support system, **Unit 2:-** Mathematical models for decision making: Structure of mathematical models, Development of a model, Classes of models Data mining: Definition of data mining, Representation of input data , Data mining process, Analysis methodologies.		10
January	**Unit 2:-**Data preparation: Data validation, Data transformation, Data reduction. **Unit 3:-** Classification: Classification problems, Evaluation of classification models, Bayesian methods, Logistic regression, Neural networks, Support vector machines Clustering: Clustering methods, Partition methods, Hierarchical methods, Evaluation of clustering models.		12
February	**Unit 4:-** Business intelligence applications: Marketing models: Relational marketing, Sales force management, Logistic and production models: Supply chain optimization, Optimization models for		20

	logistics planning, Revenue management systems. Data envelopment analysis: Efficiency measures, Efficient frontier, The CCR model, Identification of good operating practices.		
March	**Unit 5:-** Knowledge Management: Introduction to Knowledge Management, Organizational Learning and Transformation, Knowledge Management Activities, Approaches to Knowledge Management, Information Technology (IT) In Knowledge Management, Knowledge Management Systems Implementation, Roles of People in Knowledge Management Artificial Intelligence and Expert Systems: Concepts and Definitions of Artificial Intelligence, Artificial Intelligence Versus Natural Intelligence, Basic Concepts of Expert Systems, Applications of Expert Systems, Structure of Expert Systems, Knowledge Engineering, Development of Expert Systems		18

Sign of Faculty   **Sign of Coordinator**

M.L. Dahanukar College of Commerce

Teaching Plan: 2023 - 24

Department: I.T.   Class: T.Y.B.Sc.(I.T.)   Semester: VI

Subject: Principles Of Geographic Information System

Name of the Faculty: Pranali Chindarkar

Month	Topics to be Covered	Internal Assessment	Number of Lectures
December	**Unit I- Nature of GIS:** Definition, GISystem, GIScience , GIApplications ,Spatial data and Geoinformation. **Real World Representation of it:** Models and modelling,Maps, Databases, Saptial database and analysis. **Geographic Phenomena:** Definition, types, Geographic fields, Geographic objects, Boundaries. **Computer representation of geographic information:** Tessellations and types,Vector representations, Topology and spatial relationships, Scale and resolution, Representation of geographic fields and objects.		**12**
January	**Organizing and managing spatial data. The temporal dimension.** **Unit II- Geographic Information system:** GIS software,GIS architecture and functionality, SDI. **Stages of spatial data handling:** Storage and maintenance, Query and analysis, Data presentation. **Database Management System:** DBMS,Alternatives for Data management, Relational Model, Querying the relational model. **GIS and spatial database:** Linking GIS and DBMS, Spatial database functionality. **Unit III: Spatial Referencing and positioning:** Spatial Referencing, Satellite based positioning. **Spatial data input:** Direct spatial data capture, Indirect capture, obtaining data elsewhere.		**16**
February	**Data Quality:** Accuracy and positioning, Positional and temporal accuracy, Lineage, Completeness, Logical consistency. **Data preparation:** Data checks and repairs, combining data from multiple sources. **Point data transformation:** Interpolation. Retrieval, **Unit IV - Spatial Data Analysis** :Classification of analytical GIS Capabilities Retrieval, classification and measurement: Measurement, Spatial selection queries, Classification **Overlay functions:** Vector and raster overlay.		**16**

	Neighbourhood functions: Proximity computations, Computation of diffusion, Flow computation, Raster based surface analysis **Analysis:** Network analysis, interpolation, terrain modelling **GIS and Application models:** GPS, Open GIS Standards, GIS Applications and Advances		
March	**Error Propagation in spatial data processing:** How Errors propagate, Quantifying error propagation propation in patial data processing. **Unit V: Data Visualization** GIS and Maps, The Visualization Process Visualization Strategies: Present or explore? The **cartographic toolbox:** What kind of data do I have? How can I map my data? How to map? How to map qualitative data, How to map quantitative data, How to map the terrain elevation, How to map time series		**16**

Sign of Faculty   **Sign of Coordinator**

Month	Topics to be Covered	Internal Assessment	Number of Lectures
December	Power of Arrest Without Warrant Under the IT Act, 2000: A Critique, Crimes of this Millennium, Section 80 of the IT Act, 2000 – A Weapon or a Farce? Forgetting the Line Between Cognizable and Non-Cognizable Offences, Necessity of Arrest without Warrant from Any Place, Public or Otherwise, Check and Balances Against Arbitrary Arrests,Arrest for "About to Commit" an Offence Under the IT Act: A Tribute to Draco, Arrest, But NO Punishment! Cyber Crime and Criminal Justice: Penalties, Adjudication and Appeals Under the IT Act,2000: Concept of "Cyber Crime " and the IT Act , 2000, Hacking, Teenage Web Vandals, Cyber Fraud and Cyber Cheating, Virus on the Internet, Defamation, Harassment and Email Abuse,		08
January	Cyber Pornography, Other IT Act Offences, Monetary Penalties, Adjudication and Appeals Under IT Act , 2000, Network Service Providers, Jurisdiction and Cyber Crime, Nature of Cyber Criminality, Strategies to Tackle Cyber Crime and Trends, Criminal Justice in India and Implications on Cyber CrimeTerms and Conditions of Contracts. Jurisdiction in the Cyber World: Questioning the Jurisdiction and Validity of the Present Law of Jurisdiction, Civil Law of Jurisdiction in India, Cause of Action, Jurisdiction and the Information Technology Act,2000, Foreign Judgements in India, Place of Cause of Action in Contractual and IPR Disputes, Exclusion Clauses in Contracts, Abuse of Exclusion Clauses, Objection of Lack of Jurisdiction, Misuse of the Law of Jurisdiction, Legal Principles on Jurisdiction in the United State of America, Jurisdiction Disputes w.r.t. the Internet in the United State of America.		20
February	Battling Cyber Squatters and Copyright Protection in the Cyber World: Concept of Domain Name and Reply to Cyber Squatters, Meta-Tagging, Legislative and Other Innovative Moves Against Cyber Squatting, The Battle Between Freedom and Control on the Internet, Works in Which Copyright Subsists and meaning of Copyright, Copyright Ownership and Assignment, License of Copyright, Copyright Terms and Respect for Foreign Works, Copyright Infringement, Remedies and Offences, Copyright Protection of Content on the Internet; Copyright Notice, Disclaimer and Acknowledgement, Downloading for Viewing Content on the Internet, Hyper-Linking and Framing, Liability of ISPs for Copyright Violation in		20

	the Cyber World: Legal Developments in the US, Napster and its Cousins: A Revolution on the Internet but a Crisis for Copyright Owners, Computer Software Piracy. E-Commerce Taxation: Real Problems in the Virtual World: A Tug of War on the Concept of „Permanent Establishment", Finding the PE in Cross Border E-Commerce, The United Nations Model Tax Treaty, The Law of Double Taxation Avoidance Agreements and Taxable Jurisdiction Over Non-Residents, Under the Income Tax Act, 1961, Tax Agents of Non-Residents under the Income Tax Act,1961 and the Relevance to E-Commerce, Source versus Residence and Classification between Business Income and Royalty, The Impact of the Internet on Customer Duties, Taxation Policies in India: At a Glance.		
march	Digital Signature, Certifying Authorities and E-Governance: Digital Signatures, Digital Signature Certificate, Certifying Authorities and Liability in the Event of Digital Signature Compromise, E-Governance in India: A Warning to Babudom! The Indian Evidence Act of 1872 v. Information Technology Act, 2000: Status of Electronic Records as Evidence, Proof and Management of Electronic Records; Relevancy, Admissibility and Probative Value of E-Evidence, Proving Digital Signatures, Proof of Electronic Agreements, Proving Electronic Messages, Other Amendments in the Indian Evidence Act by the IT Act, Amendments to the Bankers Books Evidence Act, 1891 and Reserve Bank of India. Protection of Cyber Consumers in India: Are Cyber Consumers Covered Under the Consumer Protection Act? Goods and Services, Consumer Complaint, Defect in Goods and Deficiency in Services, Restrictive and Unfair Trade Practices, Instances of Unfair Trade Practices, Reliefs Under CPA, Beware Consumers, Consumer Foras.		10
April	Jurisdiction and Implications on cyber Consumers in India, Applicability of CPA to Manufacturers, Distributors, Retailers and Service Providers Based in Foreign Lands Whose Goods are Sold or Services Provided to a Consumer in India. Amendments in Indian IT Act 2000		2

Sign of Faculty   **Sign of Coordinator**