GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATION

Programme	B.Sc. (IT)	Branch/Spec.	Computer Applications
Semester	III	Version	1.0.0.0
Effective from Academic Year	2015-16	Effective for the batch Admitted in	June 2015
Subject code	U23A1DFS	Subject Name	Data Structure

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	1	2	-	5	Theory	40	60	100
Hours	2	1	4	-	7	Practical	20	30	50

Pre-requisites:

Knowledge of Programing Language.

Learning Outcome:

To get the Awareness regarding storage and memory structure of computer.

Theory syllabus

Unit	Content	Hrs
1	**Overview of Data Structure** Introduction to data structure, (01) Classification of Data Structure – Primitive data Structure, Non Primitive Data Structure, (01) Linear Data Structure, Non Linear Data Structure(01)	03
2	**Linear Data Structures** Introduction to Stack, Operations of Stack(3), Applications of Stack – Polish Notation (Prefix, Infix, Postfix)(5), Recursion, Stack Machine(2), Introduction to Queue, Simple Queue, Circular Queue, Double Ended Queue, Priority Queue, Applications of Queue, (5) Introduction to Linked List, Singly Linked List, Doubly Linked List, Circular Linked List, Doubly Circular Linked List, Reverse a List, (4) Merge a List, Multilinked Structures, Applications of Linked List(3)	22
3	**Non Linear Data Structures** Terminologies of Tree, General Tree, Binary Tree and its Representation, Binary Search Tree, (04) Operations of Binary Search Tree – Insert, Delete, Search, Traversal – PreOrder, InOrder, PostOrder, Threaded Tree (Excluding Algorithms), B Tree and B+ Tree (Excluding Algorithms) (04), Height Balanced Tree (AVL) (Excluding Algorithms), Weight Balanced Tree (Excluding Algorithms), Terminologies of Graph, Representation of Graph, Graph Traversal Algorithms – BFS, DFS (04)	12
4	**Searching &Sorting** Introduction, Types of Searching – Sequential Search, Binary Search (04) Introduction, Types of Sorting – Selection, Bubble, Insertion, Shell (04)	08

Practical content

List of programs specified by the subject teacher based on above mentioned topics

Text Books

1	Classic Data Structures by DebasisSamanta, PHI Publications

Reference Books

1	Data Management and File Structures By Mary E. S. Loomis-PHI Publications
2	An Introduction to Data Structure with Applications by Tremblay J. and Sorenson,Publisher- Tata McGraw-Hill international Edition, 1087

3	Expert Data Structures with C by R.B.Patel, Khanna Publications, Delhi, India
4	Data Structure Using C & C++ By Langsam, Yedidyah and Augenstein-PHI Publication
	Note for Examiner Q-1 must be common from any topics from syllabus. Q-2 and onwards must be from specific topics and internal choice or option can be given Paper Structure Q-1 (Attempt any Seven Out of Ten: each question must be 5 marks) --- 30 Questions must be covered all possible section. Q-2 (Must be From topics: Overview of Data Structure (5 marks)) Q-3 (Must be From topics: Linear Data Structures (10 marks) Q-4 (Must be From topics: Non Linear Data Structures (10 marks)) Q-5 (Must be From topics: Searching &File Structure (5 marks))

GANPAT UNIVERSITY									
FACULTY OF COMPUTER APPLICATON									
Programme	B.Sc.(IT)					Branch/Spec.	Computer Application		
Semester	III					Version	1.0.0.0		
Effective from Academic Year	2017-18					Effective for the batch Admitted in			June 2015
Subject code	U23A2DT1		Subject Name			Application Development Tool-1			
Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	1	2	-	05	Theory	40	60	100
Hours	2	1	4	-	07	Practical	20	30	50
Pre-requisites:									
Basic Computer knowledge, Basic XML.									
Learning Outcome:									
Student will learn ERP concepts, Python Programming, functional and configurations of Odoo modules.									
Theory syllabus									

Unit	Content	Hrs
1	**Introduction to ERP** Enterprise Overview, ERP Introduction, Common ERP myths, Reasons for Growth of ERP Market, Benefits of ERP, Business Modules of an ERP Package: Sales-Distribution and Service, Human Resources	08
2	**Introducing Python-1** Python Introduction, Features of Python, **The Basics:** Literal Constants, Numbers, Strings, Variables, Identifier Naming, Data Types, Objects, Logical and Physical Lines, Indentation, **Operators and Expressions:, Control Flow statements:** if, while loop, for loop, break, continue, **String,** Functions(User Defined)	08
3	**Introducing Python-2** **Modules**: Introduction, The from..import statement, Creating your own Modules, **Data Structures:** List, Tuple, Dictionary, Sequences, **Object-Oriented Programming:** classes, objects, The Self, object Methods, The __init__method, Class and Object Variables, Inheritance, polymorphism, **Exceptions:** Errors, Handling Exceptions, Raising Exceptions, Using Finally	08
4	**Odoo Installation and Odoo Apps(Module):** Installing Odoo 10.0 (Community version) on local machine, Odoo directory structure (Module structure), Creating a Database, Manage Users, **Odoo Apps**: Sales, CRM, eCommerce	08

5	**Configuring and Building an Odoo Module:** Build an Odoo Module, Basic Views: Tree View / Form View / Search View, Relations between models, Model Inheritance, ORM API , CRUD	08
Practical content		
Text Books		
1	Fundamental of Python: First Programs by Kenneth A. Lambert	
2	ERP Demystified, Second Edition By Alexis Leon, Pub:Tata McGraw Hill Education Pvt. Ltd.	
Reference Books		
1	A Byte of Python By Swaroop C H	
Web References		
1	https://www.odoo.com/documentation/10.0/	
2	https://www.odoo.com/documentation/10.0/howtos/backend.html	
	Note for Examiner Q-1 must be common from any topics from syllabus. Q-2 and onwards must be from specific topics and internal choice or option can be given **Paper Structure** Q-1 (Attempt any Six Out of Eight: each question must be 5 marks) --- 30 Questions must be covered all possible section. Q-2 (Must be From topics: Introducing to ERP (6 marks)) Q-3 (Must be From topics: Introducing Python-1 (6 marks) Q-4 (Must be From topics: Introducing Python-2 (6 marks)) Q-5 (Must be From topics: Odoo Installation and Odoo Apps(Module) (6 marks)) Q-6 (Must be From topics Configuring and Building an Odoo Module (6 marks))	

Note:
Version 1.0.0.0 (First Digit= New syllabus/Revision in Full Syllabus, Second Digit=Revision in Teaching Scheme,Third Digit=Revision in Exam Scheme, Forth Digit= Content Revision)
L=Lecture, TU=Tutorial, P= Practical/Lab., TW= Term work, DT= Direct Teaching, Lab.= Laboratory work
CE= Continuous Evaluation, SEE= Semester End Examination

GANPAT UNIVERSITY									
FACULTY OF COMPUTER APPLICATION									
Programme	B.Sc.(IT)					Branch/Spec.	Computer Applications		
Semester	III					Version	1.0.0.0		
Effective from Academic Year	2015-16					Effective for the batch Admitted in	June 2015		
Subject code	U23A3DM2		Subject Name			Database Management System-II			
Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	1	2	-	5	Theory	40	60	100
Hours	2	1	4	-	7	Practical	20	30	50
Pre-requisites:									
Must have Basic Knowledge of DBMS & RDBMS									
Learning Outcome:									
Students can apply this knowledge for Data Management and Data Administration and can performed role as a DBA									
Theory syllabus									

Unit	Content	Hrs
1	**Introduction of Oracle Database 10g and Database Configuration Assistant** **Introduction(10):** Oracle Database 10g : Overview of Grid Computing(1) Oracle Database Architecture (1) Database Structures, Oracle Memory Structures, Process Structures(1) Oracle Instance Management(1), Server Process and Database Buffer Cache(1), Physical Database Structure(2), Tablespaces and Data Files(1), SYSTEM and SYSAUX tablespaces, Segments, Extents and Block**s** (1), Logical and Physical Database Structures(1) **Creating an Oracle Database(4)** Objectives, Planning the Database, Database Configuration Assistant (DBCA)(1), Using DBCA to create a database, Password Management(2), Creating a Database Design Template, Using the DBCA to Delete a Database(1)	14
2	**Managing the Oracle Instance** Objectives, Management Framework,Starting and Stopping Database Control(1) Oracle Enterprise Manager,Accessing Oracle Enterprise Manager(1) Using SQL*Plus and iSQL*Plus to Access Your Database(1)	3
3	**Managing Database Storage Structures** Objectives, Storage Structures,How Table Data Is Stored(1) Anatomy of a Database Block(1) Tablespaces and Data Files(2) Space Management in Tablespaces, Exploring the Storage Structure(1),	13

	Creating a New Tablespace, Storage for Locally Managed Tablespaces(2) , Tablespaces in the Preconfigured Database(1) Altering a Tablespace , Actions with Tablespaces(2) Dropping Tablespaces,Viewing Tablespace Information(1) Gathering Storage Information, Viewing Tablespace Contents(1), Enlarging the Database(1)	
4	**PL/SQL** Introduction to PL/SQL, The PL/SQL Block Structure(01), Control structure(02), Processing a PL/SQL block(01), PL/SQL cursors: What is cursor?, Types of cursor, Cursor FOR loops(03), Exception handling in PL/SQL : Types of exceptions in PL/SQL(03), PL/SQL Named Block : Procedure,(01) PL/SQL Named Block : Function(02) PL/SQL Named Block : Trigger(02)	15
Practical content		
List of programs specified by the subject teacher based on above mentioned topics		
Text Books		
1	SQL, PL/SQL The Programming Language of Oracle by Ivan bayross (4th Edition), BPB Publications	
Reference Books		
1	Oracle DBA Bible, by JanathanGennick, Carol McCullough-Dieter and Gerrit- Jan Linker, WILEY-Dreamtech Publication	
2	Using Oracle, by William G. Page - PHI Publication	
	Note for Examiner: Q1: Must be common from any topics from syllabus. Q2: and onwards must be from specific topics and internal choice or option can be given **Paper Structure** Q-1 (Attempt any **Six** Out of **Eight**: each question must be 5 marks) --- **30** Questions must be covered all possible section. Q-2 (Must be From topics: : Introduction of Oracle Database 10g and Database Configuration Assistant **(08 marks)**) Q-3 (Must be From topics: Managing Oracle Instance (**02 marks**)) Q-4 (Must be From topics: Managing Database Storage Structures (**10 marks)**) Q-5 (Must be From topics: PL/SQL **(10 marks)**)	

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FACULTY OF COMPUTER APPLICATION

Programme	B.Sc. (IT)			Branch/Spec.	Computer Applications
Semester	III			Version	1.0.0.0
Effective from Academic Year		2015-16		Effective for the batch Admitted in	June 2015
Subject code	U23A4ACN	Subject Name		Advanced Computer Networks	

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	-	-	3	Theory	40	60	100
Hours	3	-	-	-	3	Practical	-	-	-

Pre-requisites:

Fundamental knowledge of Networking.

Learning Outcome:

Students can improve the knowledge in networking concepts at advance level and can apply practically in society.

Theory syllabus

Unit	Content	Hrs
1	**Basic of Computer Network** Overview of Reference Model:ISO/OSIModel & TCP/IP Model(1), Data Communication & Data Flow: Simplex Communication, Half Duplex & Full Duplex, Communication Channel, Baseband & Broadband Transmission **Transmission Media:** Magnetic Media, Twisted Pair, Coaxial Cable, Fiber Optic Cable Introduction of Frequency & Wavelength, Wireless Transmission Media: Radio Transmission, Microwave Transmission, Infrared Transmission & Electro Magnetic Spectrum	12
2	**Multiplexing, Routing & Switching** Connection Oriented & Connectionless Services, Modem Introduction **Multiplexing:**TDM & FDM, Routing Methods: Next-Hop, Host Specific, Network Specific & Default Routing, Static & Dynamic Routing **Switching:** Circuit Switching & Packet Switching	10
3	**Ethernet, Cisco Hierarchical Model & VLAN** **Ethernet Networking**: Half & Full Duplex Ethernet, Ethernet at Data Link Layer, Ethernet at Physical Layer **Ethernet Cabling:** Straight-Through Cable, Crossover Cable, Rolled Cable Cisco Three-Layer Hierarchical Model: The Core Layer, The Distribution Layer, The Access Layer **VLAN Basics:** Broadcast Control, Security, Flexibility and Scalability VLAN Membership: Static & Dynamic VLAN, Identifying VLAN: Frame Tagging, VLAN Identification Methods, Inter-Switch Link (ISL) Protocol	15
4	**Network Security** **Domain Name System:** How it Works? And Purpose of it. **Cryptography:** Encryption & Decryption, Methods of Encryption & Decryption,	8

	Substitution Cipher, Transposition Cipher, One time pad, Fundamental Cryptographic Principles. Cryptographic Attack	
Practical content		
N. A.		
Text Books		
1	Andrew S. Tanenbaum, “Computer Networks” Fourth Edition	
Reference Books		
1	Computer Network, S.S.Shinde, New Age International (P) Limited,Publishers	
2	B.A. Forouzan: Data Communication and Networking, Tata McGraw Hill. Web Link :http://www.protocols.com/pbook/tcpip1.htm	
3	CCNA Study Guide 5th Edition: Todd Lammle, Exam 640-801 BPB Publication	
	Note for Examiner Q-1 must be common from any topics from syllabus. Q-2 and onwards must be from specific topics and internal choice or option can be given Paper Structure Q-1 (Attempt any Six Out of Eight: each question must be 5 marks) --- 30 Questions must be covered all possible section. Q-2 (Must be From topics:Basic of Computer Network (6)) Q-3 (Must be From topics:Multiplexing, Routing & Switching (6)) Q-4 (Must be From topics:Ethernet, Cisco Hierarchical Model & VLAN (10)) Q-5 (Must be From topics:Network Security (8))	

GANPAT UNIVERSITY

FACULTY OF COMPUTER SCIENCE

Programme	B.Sc. (IT)		Branch/Spec.		
Semester	III		Version	1.0.0.0	
Effective from Academic Year	2014-15		Effective for the batch Admitted in		Jun 2014
Subject code	U23A5FMI	Subject Name	FUNDAMENTAL MATHEMATICS FOR INFORMATION TECHNOLOGY		

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	-	-	3	Theory	40	60	100
Hours	3	-	-	-	3	Practical	-	-	-

Pre-requisites:

Required basic knowledge of Maths.

Learning Outcome:

Students can improve maths knowledge it enhance the logic of the students.

Unit	Content	Hrs
1	**Set Theory** Introduction, Representation of Sets and Elements, Universal Set and Empty Set, Subsets, Equality of two sets, Equivalent sets, Power set, Disjoint set(3), Venn Diagrams(1), Set Operations: Union, Intersection, Difference, Symmetric difference(2), Compliment of a set, Cartesian product of two sets(2), Algebra laws of Set theory(2), Finite set, Infinite set and counting principle(2), Examples related to cardinality of sets.(4)	16
2	**Counting** Introduction-Basic Counting Principles, Factorial Notation(1), Binomial Coefficients(1), Permutations, Combinations(2), The Pigeonhole Principle, Ordered and Unordered Partitions(3)	7
3	**Graph Theory** Introduction, Data Structures, Graphs and Multigraphs, sub graphs(2) , Finite graphs, Trivial Graph, Isomorphic and Homeomorphic Graphs(2), Paths Connectivity, The Bridges of Konigsberg (2),Traversable Multigraphs, Hamiltonian graphs , Eulerian graphs (2),Complete, regular and Bipartite Graphs(1)	9
4	**Vectors and Metrics** Introduction, Vectors Matrices(1), Unit matrix, Square matrix, Transpose of a Matrix, Invertible(Nonsingular) Matrices, Zero matrix or Null Matrix(3) , Row Matrix and Column Matrix , Symmetric Matrix, Skew Symmetric Matrix(2), Upper Triangular Matrix, Lower Triangular Matrix(1), Arithmetic Operations on Matrices : Addition , Subtraction and Multiplication of Matrices(3) , Determinants, Elementary Row Operations, Gaussian Elimination(3)	13

Practical content

No Practical Contents

Text Books

1	Discrete Mathematics:- Seymour Lipschutz and Marc Lars Lipson **Adapted By:** Varsha H. Patil

Reference Books

1	Advance Mathematics:- Heena Timani- Books India Publication
	Note for Examiner: Q1: Must be common from any topics from syllabus. Q2: and onwards must be from specific topics and internal choice or option can be given Paper Structure Q-1 (Attempt any **Six** Out of **Eight**: each question must be 5 marks) --- **30** Questions must be covered from all possible section. Q-2 (Must be From topics: **Set Theory: (10 marks))** Q-3 (Must be From topics: **Counting: (6 marks))** Q-4 (Must be From topics: **Graph Theory: (6 marks))** Q-5 (Must be From topics: **Vectors and Matrics (8 marks))**