

GANPAT UNIVERSITY									
FACULTY OF COMPUTER APPLICATION									
Programme	B.Sc.(CA&IT)					Branch/Spec.	DCS		
Semester	IV					Version	1.0.0.0		
Effective from Academic Year			2018-2019			Effective for the batch Admitted in		July 2018	
Subject code	U14A1GUI		Subject Name			GUI PROGRAMMING			
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	TOTAL
	L	Tu	P						
Credit	3	-	2	-	5	Theory	40	60	100
Hours	3	-	4	-	7	Practical	20	30	50
Pre-requisites:									
One should have knowledge of Programming Language and basic concepts of Object Oriented Programming.									
Learning Outcome:									
By the end of this module students should be aware about									
<ul style="list-style-type: none"> • Fundamental of .Net framework • Implementation of C# Console applications • Windows Application Development • Implementation of .Net Applications with data manipulation 									
Theory syllabus									
Unit	Contents								Hrs.
1	Basic of the .Net Framework								(09)
	What .net technology? Comparison of .net technology over other current technology. Advantages of .net technology. Comparison & Overview of all Frameworks. Introduction about applications to be developed by .net. .Net Framework Architecture :.Net Framework Architecture. Role of CLR in .net framework. Introduction about language supported by .net. CLR architecture. Managed and unmanaged code. Compiling Source code into Managed module. Introduction about class library (FCL),MSIL code. Role of assembly and meta data. JIT compiler and its types, JIT vs Traditional compiler, Class Loader, Name space (Purpose and Types). CTS – Value types and reference types,CLS, Interoperability with unmanaged code.								
2	Introduction about Visual studio Tool								(04)
	Comparisons and overview with all visual studio Tools versions. Create new windows application with vb.net, C sharp and other language.Introduction about all categories of toolbox control. Design window, solution explorer, Server Explorer, Property and Event Explorer,Class view, Command window, Introduction about code window, Understand how to write code, run application, debugging application. Introduction about menus and functionalities of all menu bar availablein Tools. Class and Event driven model.								
3	Basics of C Sharp.								(09)
	Advantages of OOPS. Creating Class and Object, Structure of Class. Data types,Operators,Constructor,Destructor,Abstraction,Interface,Polymorphisam(Overloading,over riding),Inheritance, Garbage collection, Jagged Array, Collection(hast table and Array List), Indexer(One dimension) and property, Delegates and event(Multicasting), Exception handling, String handling functions, Creating function								

	with all types.	
4	Understanding .Net Control	(14)
	<p>Net Common Controls:Control Hierarchy, Label and Link Label, Text Box and Rich Text Box, Picture Box, Button, Group Box, Panel, Check Box and Radio Button, List Box, Checked List Box and Combo Box, Month Calendar and Date Time Picker, Tree View and List View, Timer, Track Bar and Progress Bar, Image List control, HScroll Bar, VScroll Bar, Tab Control</p> <p>Common Dialogs Control: Color Dialog, Folder Browser Dialog, Font Dialog, Open File Dialog, Save File Dialog , MDI-Forms, Exploring Properties, Methods and Events, Menu bar, Context Menu, Message box, Input box.</p>	
5	ADO.net	(09)
	Architecture Of ADO.Net, Data Base Manipulation, .Net Data Provider, Data Adapter, Data Set, Data Table, Introduction about SQL server. Connection with SQL server. Command, Data Reader,Data Grid View, Execute reader, Execute Non Query, Execute Scalar, Crystal Report, Setup and Deployment of .net Applications.	
Practical content		
List of programs specified by the subject teacher based on above mention topics.		
Text Books		
-		
Reference Books		
	<ul style="list-style-type: none"> • The complete reference c sharp 4.0 By, Herbert Schildt, Publisher: McGraw-Hill • Microsoft Visual C# 2010 Step by Step, By John Sharp, Microsoft. • Professional C# 5.0 And .Net 4.5.1, By Christian Nagel (Author), Jay Glynn (Author), Morgan Skinner (Author), Publisher: Wrox 	

Note:

Version 2.0.0.0 (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

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

SECTION-I

Q-1 Attempt any Five Out of Seven: each question must be 6 marks) --- 30 marks

Question must be covered all possible section.

SECTION-II

Q-2 (Must be from topics: 1 and 2 (6+6))

Q-3 (Must be from topics: 3 and 4(6+6))

Q-4 (Must be from topics: 5(6))

FACULTY OF COMPUTER APPLICATIONS

Programme	B.Sc.(CA&IT)				Branch/Spec.	Computer Applications			
Semester	IV				Version	1.0.0.1			
Effective from Academic Year	2019-20				Effective for the batch Admitted in	June 2018			
Subject Code	U14A2ADS		Subject Name		ADVANCE DATABASE MANAGEMENT SYSTEM				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	2	-	5	Theory	40	60	100
Hours	3	-	4	-	7	Practical	20	30	50
Objective:									
To learn the advance concepts of Relational Database Management System. This course provides a practical hands-on introduction of PL/SQL and various Oracle Objects.									
Pre-requisites:									
One should have Basic Knowledge of SQL and Database.									
Learning Outcome:									
After completing this course, students should be able to learn:									
<ul style="list-style-type: none"> ✓ Advance database concepts necessary for Transaction Management and Distributed Database ✓ PL/SQL Language with various control structures and use of all types of cursor in PL/SQL Block ✓ Use of various Oracle Objects ✓ Moving Data with the use of various options of Import/Export Command ✓ SQL *Loader facility with various loading methods 									
Content:									
Unit									Hrs
1	Transaction Management and Distributed Database: Recovery : Introduction, Transactions, Transaction Recovery, System Recovery, Two-phase Commit Concurrency: Introduction, Three Concurrency Problems, Locking, The Three Concurrency Problems Revisited, Deadlock Security: Introduction, Discretionary Access Control, Mandatory Access Control, Data encryption Distributed Database: Introduction, Some Preliminaries, The Twelve Objectives, Problems of Distributed Database Systems								10
2	PL/SQL Part – I: Introduction to PL/SQL, Advantages of PL/SQL, The Generic PL/SQL block, The PL/SQL execution environment, PL/SQL Control Structure (Conditional, Iterative and Sequential Controls), PL/SQL Transactions: Oracle Transactions, Closing transactions, Introduction to Cursor, Implicit Cursor, Explicit Cursor, Cursor for loops, Parameterized cursor								10

3	<p>PL/SQL Part – II: Procedure and Function : Introduction and Advantages, Procedure Creation, Function Creation Package : Introduction and use of Package, Components of Package, Overloading of Procedure and Function through Package Trigger : Introduction and use of Triggers, Types of Trigger, use of Raise_Application_Error Procedure Exception and Error handling : Oracle’s Named Exception Handlers, User Named Exception Handlers, User Defined Exception Handlers</p>	10
4	<p>Moving Data: Objectives of moving data, Moving Data: General Architecture, Directory Object: Overview, Creating Directory Objects, Data Pump: Overview, Data Pump: Benefits, Data Pump Export and Import: Overview, Data Pump Utility: Interfaces and Modes(3), Fine-Grained Object Selection, Advanced Feature: Sampling, Export Options: Files, Data Pump File Locations</p>	7
5	<p>SQL *Loader: Introducing SQL*Loader, Understanding the SQL*Loader Control File, Specifying the input file, Loading data into nonempty tables, Specifying the table to load, Describing fixed-width columns, Using SQL*Loader Data types, Describing delimited columns, Understanding the SQL*Loader Command, Loading Methods</p>	8
Practical Content:		
List of programs specified by the subject teacher based on above mentioned topics		
Reference Books:		
1	Introduction to Database System by C. J. Date (8th edition)- Low Price Edition	
2	SQL, PL/SQL: The Programming Language of Oracle by Ivan Bayross (3rd and 4th Edition) BPB Publications	
3	Database System Concepts By Henry F. Korth (3rd Edition) TMH	
4	Database System Using Oracle - A Simplified to SQL and PL/SQL by Nilesh Shah(2nd Edition)	
5	Oracle Database 10G, The Complete reference by kevin loney- Tata Mcgraw Hill Education Pvt. Ltd Publication	
Web Reference:		
Question Paper Scheme:		
<p>University Examination Duration: 3 Hours 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.</p> <p>SECTION – I Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) – 30 Questions must be covered all possible section.</p> <p>SECTION – II Q-2 (Must be from topics: 1 and 2 (6+6)) Q-3 (Must be from topics: 3 and 4(6+6)) Q-4 (Must be from topic: 5(6))</p>		

FACULTY OF COMPUTER APPLICATIONS

Programme	B.Sc.(CA&IT)				Branch/Spec.	Computer Applications			
Semester	IV				Version	1.0.0.1			
Effective from Academic Year	2019-20				Effective for the batch Admitted in	June 2018			
Subject Code	U14A3WD2		Subject Name		WEB DESIGNING – II				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	2	-	5	Theory	40	60	100
Hours	3	-	4	-	7	Practical	20	30	50
Objective:									
To learn advance concepts in web designing. Students will learn jQuery, CSS3, Bootstrap to design an interactive and responsive web page.									
Pre-requisites:									
Basic knowledge of JavaScript, HTML and CSS									
Learning Outcome:									
After completing this course, students should be able to:									
<ul style="list-style-type: none"> ✓ Implement jQuery effects and animation methods to animate a web page ✓ Use ajax and jQuery plugins in a web page ✓ Apply css3 features to design a web page ✓ Use and manipulate bootstrap template ✓ Develop responsive and interactive websites with much less efforts 									
Content:									
Unit									Hrs
1	jQuery Basics What is jQuery?, Why jQuery?, jQuery Syntax, jQuery Selectors, Event Handling, jQuery Effects, Animations, jQuery Callback functions, jQuery get/set Content and attributes, jQuery Add/remove Elements, jQuery Get and Set CSS classes, jQuery CSS method, jQuery Dimensions								9
2	jQuery Advanced jQuery Utility functions –Browser Feature Detection and Array ,jQuery and AJAX ,jQuery Plugins								9
3	CSS3 CSS3 vs. CSS, Adding Borders and Backgrounds, Advanced Text Effects,2D and 3D Transformations, Adding Transitions to Elements ,Adding Animations to Text and Elements ,CSS3 flexbox and filters								9
4	Responsive Web Design Difference between Multiple Devices, Making a page to Work on Multiple Devices, Media Queries, Introduction to Bootstrap CSS API-Bootstrap Layout, Typography, Grid System								8

5	Bootstrap Bootstrap Icons, Buttons , Labels & Badges ,Tables, Nav, Navbar, Panel, ,Progress Bar, Working with Bootstrap Template	10
Practical Content:		
List of programs specified by the subject teacher based on above mentioned topics		
Reference Books:		
1	Refreshing your UI with HTML5, Bootstrap and CSS3 by Matt Raible	
2	HTML 5 and CSS 3 Made Simple By Ivan Bayross	
3	Responsive Web Design with HTML5 and CSS3 By Ben Frain, PACKT Publishing	
4	Head First jQuery by Ryan Benedetti, Ronan Cranley , O'Reilly Media Publisher	
Web Reference:		
1	-	
Question Paper Scheme:		
	<p>University Examination Duration: 3 Hours 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.</p> <p>SECTION – I Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) – 30 Questions must be covered all possible section.</p> <p>SECTION – II Q-2 (Must be from topics: 1 and 2 (6+6)) Q-3 (Must be from topics: 3 and 4(6+6)) Q-4 (Must be from topic: 5(6))</p>	

FACULTY OF COMPUTER APPLICATIONS

Programme	B.Sc.(CA&IT)				Branch/Spec.	Computer Applications			
Semester	IV				Version	1.0.0.1			
Effective from Academic Year	2019-20				Effective for the batch Admitted in	June 2018			
Subject Code	U14A4NT1		Subject Name		NETWORK TECHNOLOGY – I				
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	-	-	-
Objective:									
To get knowledge about computer network and its usability and communication protocols with the fundamental of network security									
Pre-requisites:									
Basic Information of Computer Networking and Communication, Unguided and Guided Media of Computer Network									
Learning Outcome:									
After completing this course, students should be able to:									
<ul style="list-style-type: none"> ✓ Learn about computer network and its usability ✓ Understand various Network Communication Protocols. ✓ Acquired the knowledge of network security 									
Content:									
Unit									Hrs
1	Overview of Computer Network : Uses of Computer Networks, Transmission Media, Different Connectors, Network Connecting Devices, Types of Computer Network(LAN, MAN, WAN,WLAN, PAN, CAN,SAN), Network Topologies, OSI Model, TCP / IP Reference model, Wired Computer Network VS Wireless Computer Networks, Wireless Networking Ad-hoc vs. Infrastructure Modes, IEEE standards								9
2	Introduction to Multiple Access Protocol and Lower Layer: Multiple Access Protocol ALOHA, CSMA protocols. Wireless LAN Protocols - MACA, MACAW Lower Layer Physical(MAC) and Logical Address,IPV4 and IPV6, Framing and Frame Format, Flow control, control, Error Control, Sliding Windows protocols(Stop and Wait, Go back N, Selective repeat)								9
3	Switching and Transport Layer: Switching: Circuit Switching, Message Switching, Packet Switching Transport Layer:								9

	Classes of Network, IP Addressing, special addresses, Subnet Masking, Supernet, Delivery and Routing of IP Packets, Routing Table, Routing Methods (Next-Hop, Network specific, Host specific, Default routing), Static VS Dynamic routing, Connection oriented VS Connectionless services, Direct VS Indirect Delivery	
4	Communication Protocols: Introduction to TCP and TCP Connection, UDP, ICMP, IGMP, ARP and RARP Protocols	9
5	Application Layer: Cryptography, Techniques of Cryptography, RS Algorithm, Digital Signature, Firewall, Introduction to virus, Types of virus, Antivirus software, SNMP, SMTP, POP3, IMAP, BOOTP, Electronic mail, World Wide Web, HTTP	9
Practical Content:		
List of programs specified by the subject teacher based on above mentioned topics		
Reference Books:		
1	Computer Network by Andrew S. Tanenbaum, Edition 4th, Pearson.	
2	Data Communication and Networking, By Behrouz A. Forouzan, Edition 4 th TMH	
3	TCP/IP Protocol Suite TATA McGraw-Hill Edition 3 rd By Behrouz A. Forouzan	
Web Reference:		
Question Paper Scheme:		
<p>University Examination Duration: 3 Hours 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.</p> <p>SECTION – I Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) – 30 Questions must be covered all possible section.</p> <p>SECTION – II Q-2 (Must be from topics: 1 and 2 (6+6)) Q-3 (Must be from topics: 3 and 4(6+6)) Q-4 (Must be from topic: 5(6))</p>		

FACULTY OF COMPUTER APPLICATIONS

Programme	B.Sc.(CA&IT)				Branch/Spec.	Computer Applications			
Semester	IV				Version	1.0.0.1			
Effective from Academic Year	2019-20				Effective for the batch Admitted in	June 2018			
Subject Code	U14A5SE		Subject Name		SOFTWARE ENGINEERING				
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	-	-	-
Objective:									
To learn the fundamental concepts of Software Engineering, Process Models, Requirement Engineering, Analysis Model, Design Engineering and Testing.									
Pre-requisites:									
Basic Knowledge of Software Development									
Learning Outcome:									
The Students should be able to learn concepts of,									
<ul style="list-style-type: none"> ✓ Software Engineering and Generic view of Software ✓ Different type of Process Models ✓ System and Requirement Engineering ✓ Different Analysis Model ✓ Different types of Design Model and Testing 									
Content:									
Unit									Hrs
1	Introduction to Software Engineering and A Generic View of Software : The Evolving Role of Software, Software, The Changing Nature of Software, The Quality of legacy Software, Software Evolution, Software Myths, Software Engineering: A layered Technology, Process framework, The Capability Maturity Model Integration (CMMI), Process Patterns								8
2	Process Models: The Waterfall Model, Incremental Process Models: The Incremental Model, The RAD Model, Evolutionary Software Process Models: Prototyping, The Spiral Model, Concurrent Development Model, A Final Comment on Evolutionary Processes, Specialized Process Models: Component-Based Development, Formal Methods Model, Aspect Oriented Software Development								9
3	System and Requirement Engineering : Computer Based Systems, System Engineering Hierarchy, Business Process Engineering, Product Engineering, System Modeling, Requirement Engineering Tasks : Inception, Elicitation, Elaboration, Negotiation, Specification, Validation, Requirement Management, Requirement Engineering Process								10
4	Analysis Model : Analysis Modeling Approaches, Data Modeling concepts: Data Objects, Data Attributes,								9

	Relationships, Cardinality and Modality, Object Oriented Analysis, Scenario Based Modeling, Flow Oriented Modeling, Class Based Modeling	
5	Design Engineering and Testing : Design Concepts, Design Model: Data Design Elements, Architectural Design Elements, Interface Design Element, Component Level Design Model, Deployment Level Design Model, Approach to Software Testing, Unit Testing, Integration Testing, Validation testing, System Testing	9
Practical Content:		
Reference Books:		
1	Software Engineering, by Roger Pressman (6th Edition)	
2	System Analysis, Design and Introduction to Software engineering 10th Edition, - S.Parthasarthy & B.W.Khalkar, MasterAcademy	
Web Reference:		
Question Paper Scheme:		
	<p>University Examination Duration: 3 Hours 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.</p> <p>SECTION – I Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) – 30 Questions must be covered all possible section.</p> <p>SECTION – II Q-2 (Must be from topics: 1 and 2(6+6)) Q-3 (Must be from topics: 3 and 4(6+6)) Q-4 (Must be from topic: 5(6))</p>	

FACULTY OF COMPUTER APPLICATIONS

Programme	B.Sc.(CA&IT)				Branch/Spec.	Computer Applications			
Semester	IV				Version	1.0.0.0			
Effective from Academic Year		2019-20			Effective for the batch Admitted in		June 2018		
Subject Code	U14B6SQA		Subject Name		SOFTWARE QUALITY ASSURANCE				
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	-	-	-
Objective:									
To learn fundamentals of software testing. Students will learn testing tools and techniques, methods, defect management and reporting									
Pre-requisites:									
One should have basic knowledge of software development life cycle, software quality									
Learning Outcome:									
After completing this course, students should be able to:									
<ul style="list-style-type: none"> • Implement Fundamental of Software Testing and Testing Life Cycle • Implement Different Testing Techniques • Automation in testing with testing tools • Implement Defect management 									
Content:									
Unit									Hrs
1	Fundamental of Testing Software Testing Overview, Advantages of Testing, Verification and Validation, Independent Verification and Validation, Static Vs. Dynamic Testing, Scope of Testing, Role of Tester, V-Model of Software Testing, Software Testing Life Cycle, Requirement Analysis and Prioritization, Ambiguity Review, Requirement Traceability Matrix, Requirement Based Testing.								9
2	Testing Techniques Levels of Testing, Alpha and Beta Testing, Black box Testing, White Box Testing, Functional and Non Functional Testing, Form level Validation, Field Level Validation, Inter form dependencies, Web Based Testing.								8
3	Different Testing Types Performance Testing, Volume, Stress and Load Testing, User Acceptance Testing, Security Testing, Usability Testing, Localization Testing, Documentation Testing, Regression Testing, Database Testing, Exploratory Testing, Mobile Application Testing.								9

4	Test Management and Automation Testing Guidelines, Test Strategy, Test Case Design, Test Design, Test Planning, Status Reports, Test Management, TPI, Test Execution Cycles. Test Automation, Skills Required for Automation, Challenges in Automation, Overview of Test Automation Tools, Advantages of Automation Tools, Working with Automation Tools.	10
5	Defect Management and Reporting Software Quality, Defect Overview, Origins of Defect, Taxonomy of Defect, Defect Life Cycle, Defect Management Process, Preparing Defect Report, Advantages of Good Defect Report, Defect Report Template, Defect Prevention, Test Matrix and Measurements.	9
Reference Books:		
1	Software Testing-Principles and Practices - By Srinivasan Desikan and Gopalswamy Ramesh, Pearson Education	
2	Effective Methods of Software Testing (3rd Edition) - By William E. Perry, Wiley, India	
Question Paper Scheme:		
	<p>University Examination Duration: 3 Hours 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.</p> <p>SECTION – I Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) – 30 Questions must be covered all possible section.</p> <p>SECTION – II Q-2 (Must be from topics: 1 and 2 (6+6)) Q-3 (Must be from topics: 3 and 4(6+6)) Q-4 (Must be from topic: 5(6))</p>	