GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATION

Programme	M.Sc.(CA&IT)	Branch/Spec.	DCS
Semester	I	Version	1.0.0.0
Effective from Academic Year	2018-2019	Effective for the batch Admitted in	June 2018
Subject code	P21A1WUT	Subject Name	WEB UI TECHNOLOGIES

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	TOTAL
	L	Tu							
Credit	3	-	3	-	6	Theory	40	60	100
Hours	3	-	6	-	9	Practical	20	30	50

Pre-requisites:

Knowledge of HTML, CSS and JavaScript

Learning Outcome:

By the end of this course, the students should be able to

- Understand Client Side MVC and SPA
- Explore AngularJS Component
- Develop an AngularJS Single Page Application from scratch
- Create and bind controllers with Javascript
- Apply filter in AngularJS application
- Perform CRUD functions using AngularJS form
- Integrate Angular application with other Javascript libraries such as Node.js
- Use Node.js Core Modules
- Use MongoDB to store data in database

Theory syllabus

Unit	Contents	Hrs.
1	**AngularJS Core Concepts** What is AngularJS?, Advantages of Angular, AngularJS MVC ,Introduction to SPA, Setting up the environment, First App using MVC architecture, Understanding ng attributes, Expression and Data Binding, Working with directives, Angular Modules , Controller, Scope and View ,Create Controller and Module, $scope hierarchy	9
2	**Filter, Forms and Ajax** Filters - Built-in filters - upper case and lower case filters, date ,currency and number formatting ,orderBy, filter ,custom filter, Angular JS Forms – Working with AngularJS forms, model binding, form controller ,Using CSS classes, form events ,custom model update triggers ,custom validation ,$http service ,Ajax implementation using $http	9
3	**Dependency Injection, Services ,Routing and Navigation** What is dependency injection?, Using dependency injection, Angular JS service – Understanding services , Using built-in service, Creating custom service, Injecting dependency in service, Routing – What is Routing?, Routing using ngRoute and UI-Router, ngView Directive, Configuring $routeProvider ,$stateProvider, Animating Angular App	9
4	**Introduction to Node.js** What is Node.js?, Features of Node.js, Setup Development Environment- Installing Node.js, Working with REPL, Node.js Console, Node.js Module, Node Package Manager,Node.js Basics, File System ,HTTP and HTTPs, Creating Web Server- Handling http request, Node.js Callbacks, Node.js Events	9

5	**Database Connectivity** Promises,Express.js, Database Connectivity – Connecting to RDBMS and NoSQL database, Performing CRUD operations	9
Practical content		
List of programs specified by the subject teacher based on above mentioned topics.		
Text Books		
1.	Node.js, MongoDB, and AngularJS Web Development by Brad Dayley	
Reference Books		
1. 2. 3.	Pro Angular JS by Adam Freeman AngularJS Programming by Example by Agus Kurniawan MEAN Web Development by Amos Q. Haviv	
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: 1 Q-1 (Attempt any Five Out of Seven: each question must be of 6 marks) -- 30 Questions must be covered from all possible section. **Section: 2** 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))	

Note:

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FACULTY OF COMPUTER APPLICATION

Programme	M.Sc.(CA&IT)	Branch/Spec.	DCS
Semester	I	Version	1.0.0.0
Effective from Academic Year	2018-2019	Effective for the batch Admitted in	June 2018
Subject code	P21A2J2EE	Subject Name	J2EE PROGRAMMING

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	TOTAL
	L	Tu							
Credit	3	-	3	-	6	Theory	40	60	100
Hours	3	-	6	-	9	Practical	20	30	50

Pre-requisites:

Basic knowledge of Core Java, HTML, SQL.

Learning Outcome:

- Installation and configuration of Application server
- Design/ Handle client request response using Servlet and JSP with validation
- Map object relational mapping through hibernate.
- Develop enterprise application using design patterns.

Theory syllabus

Unit	Contents	Hrs.
1	**Introduction to J2EE Technology (9)** Introduction**:** Java EE Application Model, Standard services of Java EE, Distributed Multi-tiered applications, Client, Web and Business tier, Java EE APIs. MySQL and Java JDBC**:** Introduction to MySQL, MySQL JDBC Driver, Creating Database, MySQL Data Manipulation using Java JDBC	9
2	**Servlets (9)** Servlet API and Servlet life cycle, Writing Service Methods, Request Dispatcher techniques, Maintaining Client's state, Scope of Objects, Service Listeners. Servlet Config, Servlet Context, Session Tracking, Event and Listener, Servlet Filter, CRUD Operation with Servlet.	9
3	**Java Server Pages (9)** JSP **:** Life Cycle of JSP Page, Translation, Compilation and Execution, JSP Directives, JSP code block [expression, scriptlet, declaration and comment], JSP Standard Actions, Implicit Objects, Expression Language, JavaBeans components, transferring control to another web component, CRUD operation with JSP. JSTL **:** Java Server Pages Standard Tag Library [Core Tag Library, Format Tag Library, SQL tag library, JSTL Functions.	9
4	**JPA and Hibernate (9)** JPA: Introduction, architecture, ORM components, JPQL, entity managers, advance mappings, entity relationship. Hibernate: Introduction to Persistent, Entity, Relation (ORM), Hibernate tool, Hibernate APIs, Queries and Criteria, Differed and immediate execution.	9
5	**XML Support, Parsers, Web Services and Web Socket (9)** JAXP: DOM, SAX, JAXB	9

	JSON: JSON object/list, JSON Parser Securing Web Application: Authentication Methods [Form, Basic and Digest Authentication], Authorization Web Services**:** Big Web Service – JAX – WS, RESTful web service – JAX – WS Java API for Web Socket: WebSocket basics, Programmatic and annotated End points, Sending / Receiving message, Encoders/Decoders, Path Parameters, Handling Errors	
Practical content		
List of programs specified by the subject teacher based on above mentioned topics.		
Text Books		
1.	-	
Reference Books		
1.	Professional Java Server Programming by SubrahmanyamAllamaraju – Apress publications	
2.	Java Server Programming Black book by Kogent Solutions Inc.-Dreamtech publications	
3.	J2EE Unleashed by Mark Ashnault, Paul Allen, Joseph J. Bambara- SAMS	
Note for Examiner		
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Paper Structure		
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FACULTY OF COMPUTER APPLICATIONS

Programme	M.Sc.(CA&IT)	Branch/Spec.	DCS
Semester	I	Version	1.1.0.1
Effective from Academic Year	2018-19	Effective for the batch Admitted in	June 2018
Subject code	P21A2NP	Subject Name	.NET PROGRAMMING

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3		3	-	6	Theory	40	60	100
Hours	3		6	-	9	Practical	20	30	50

Pre-requisites:

.Net Framework, Basic Controls, Asp.Net Technology

Learning Outcome:

After learning this course, the students should be able to

- Develop console applications and windows application using c#
- Build SQL dependent and independent database application
- Develop Service oriented application using WCF
- Use WPF to implement various styles, layouts and templates while developing the application

Theory syllabus

Unit	Content	Hrs
1	**C# Language Basic Concepts** Basic Concepts: Program Structure, Type, Literals & Variables, expressions, statements, Default value and default assignment, Namespace OOPs Concepts: Members [static and instance fields and methods, Member access, Output parameter, Properties, Indexers, Overloading, Inheritance, Boxing-Unboxing, Overriding, Key Words [Virtual, abstract, new and sealed], Classes [Static, Abstract, sealed], Hiding members	9
2	**C# Language Advance Concepts** Constructs: Arrays, Structs, Enums Interfaces & Delegates [Anonymous method, Lambda Expression, Events] Constructed Types – Generics: Type Argument, Open/Closed Types, Dynamic type Exception Handling: Keywords - try, catch, finally and throw, Creating User-Defined Exceptions, Throwing Objects Statements [Using, Yield], Concept of Partial Class File I/O: Byte & Character Oriented I/O Expansion Method: Concept of Expansion method, How to bind at compile time? How to Implement and Call a Custom Extension Method?	9
3	**Basic API, Collections and Database Connectivity** Basic APIs: Simple Types, String and StringBuilder, Diagnostic API – Debug & Trace Collection Framework ADO.Net: ADO v/s ADO.Net, Benefits of ADO.Net, ADO.Net Architecture, Connection Class, Command Class, DataReader Class, DataAdapter Class, DataSet Class, DataTable Class, DataRow Class, DataColumn Class, Using Stored Procedures Report Facility: Manipulation of Static and Dynamic Crystal Reports	9

4	**Multi- Threading, LINQ & Parsers** Network API: Socket Programming Thread & Serialization: Thread, ThreadPool, Lock, Mutex, Sleep, Process, Multi-Threading, Serialization Asynchrony API:Async& Await method LINQ: Basics of Query Expression, LINQ to Objects, LINQ to SQL, LINQ to XML, Regular Expression Parsers: JSON Parser, XML Parser [XAML System]	9
5	**WPF & WCF** WPF: WPF Architecture & Render Engine, WPF Controls [Layout, Drawings & Painting, Style, templates…] WCF Service: Introduction to WCF, Architecture of WCF, Features of WCF, WCF Communication Protocols, Addresses, Endpoints, Bindings, Contracts, Behaviors, Message Patterns, Hosting, Creating and Using WCF Service.	9
Practical content		
List of programs specified by subject teacher based on above mention topics.		
Text Books		
	-	
Reference Books		
1	The complete reference C# 4.0 by Herbert Schildt, TMH	
2	Professional C# 2012 and .NET 4.5 by Bill Evjen and others, WROX	
3	WPF 4.0 by Adam Nathan, Unleased Publication	
Note for Examiner		
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Paper Structure		
	Section:1 Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) -- 30 Questions must be covered from all possible section. **Section:2** 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))	

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FACULTY OF COMPUTER APPLICATION

Programme	M.Sc.(CA&IT)	Branch/Spec.	DCS
Semester	I	Version	1.0.0.0
Effective from Academic Year	2018-2019	Effective for the batch Admitted in	
Subject code	P21A2WDT	Subject Name	WEB DEVELOPMENT TECHNOLOGIES

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	TOTAL
	L	Tu							
Credit	3	-	3	-	6	Theory	40	60	100
Hours	3	-	6	-	9	Practical	20	30	50

Pre-requisites:

Basic knowledge of JavaScript, HTML, CSS and any Programming Language

Learning Outcome:

After learning this course, the students should be able to

- Develop web application in Php
- Implement Object Oriented Programming Concept in web application
- Integrate payment gateway and social media API in web application.
- Implement security in web application
- Deploy and manage web application

Theory syllabus

Unit	Contents	Hrs.
1	**Basics of PHP** Introduction PHP, Future of PHP, Client-side scripting, Server-side scripting, adding PHP to HTML Syntax and variable, control and function, Passing information between page, String, Array and Array Function, Date function	9
2	**Working with OPP and Advance OOP** Basic PHP construction for OOP, Advance OOP future, Uploading and downloading files , State management - Session, cookies, URL rewriting, Hidden Form Field	9
3	**Working with data using PDO, XML and JSON** Introduction to PDO, Driver installation for PDO, Database manipulation using PDO, Introduction to XML Parser in PHP, Reading and writing to XML file, Web Services, JSON	9
4	**Payment Gateway, Email, Social Media** Integration of payment gateway, Integrating of emails and SMS to web application, Integrating of social media networks to web application	9
5	**Web Security, Deployment and Backup of Web Application** Data Validation, SQL Injection, Cross Site Scripting, Deployment of Web Application, Creating Backup and Restore Script of Database, Web Application Management: FTP, Github, Filezilla	9

Practical content

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

Text Books

1.	PHP 5 and MySQL Bible publication
Reference Books	
1. 2.	The Complete Reference PHP, by Steven Holzner, TATA McGraw-Hill Publication Beginning PHP and MySQL, by W. Jason Gilmore, ApressPublication
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:1 Q-1 (Attempt any Five Out of Seven: each question must be 6 marks) -- 30 Questions must be covered all from possible section. Section:2 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))

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FACULTY OF COMPUTER APPLICATIONS

Programme	M.Sc.(CA&IT)	Branch/Spec.	DCS
Semester	I	Version	1.0.0.0
Effective from Academic Year	2018-19	Effective for the batch Admitted in	June 2018
Subject code	P21A3AF	Subject Name	ANDROID FUNDAMENTALS

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3		3	-	6	Theory	40	60	100
Hours	3		6	-	9	Practical	20	30	50

Pre-requisites:

Knowledge of Java Programming Language and Object Oriented Programming Concepts.

Learning Outcome:

After learning this course, the students should be able to

- Define key programming terms relevant to kotlin and Android programming
- Describe the basic components of an Android application and the lifecycle methods
- Use intent and different layout in Android App
- Build user interfaces with fragments, views, form widgets, text input, lists, tables, and more by using various styles and themes
- Store application data on the mobile device, in internal or external storage locations

Theory syllabus

Unit	Content	Hrs
1	**Introduction** History of Android, The OHA, Android SDK Installation, The Android O/S Architecture, AVD, Basic of Kotlin, Application Resources: Types of Resources	9
2	**Activity, Intent, and Layout** Activity and Its Lifecycle, Create an Activity Intent: Implicit Intent, Explicit Intent Various Layouts: Linear Layout, Relative Layout, Grid Layout, Table Layout	9
3	**User Interaction** User Input Controls, Menus, Screen Navigation, Recycler View	9
4	**User Experience** Drawable, Styles, and Themes, Material Design	9
5	**Data Storage** Preferences and Setting: Storing Data, Shared Preferences, App Settings Storing data using SQLite: SQLite Primer, SQLite Database, Sharing data through Content Providers	9

Practical content

List of programs specified by subject teacher based on above mention topics.

Text Books

1.	Android Developer Fundamental: Concept Reference By Google Developer Team

Reference Books

1.	Android Wireless Application Development By Shane Conder & Lauren Darcy
2.	Kotlin in Action By Dmitry Jemerov

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: 1 Q-1 (Attempt any Five Out of Seven: each question must be of 6 marks) -- 30 Questions must be covered from all possible section. **Section: 2** 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))

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Programme	M.Sc.(CA&IT)	Branch/Spec.	DCS
Semester	I	Version	1.0.0.0
Effective from Academic Year	2018-19	Effective for the batch Admitted in	June 2018
Subject code	P21A3SF	Subject Name	SWIFT FUNDAMENTALS

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3		3	-	6	Theory	40	60	100
Hours	3		6	-	9	Practical	20	30	50

Pre-requisites:

Basic knowledge of High Level Programming Language and Object Oriented Programming Concepts.

Learning Outcome:

After learning this course, the students should be able to

- Define key programming terms relevant to Swift and iOS programming
- Describe the process of creating iOS app
- State the purpose of Apple Developer tools like XCode, iOS Simulator, Debugger
- Employ the Apple developer tools to create an iOS App
- Use auto layout and size classes to design an iOS App
- Explore UIKit framework

Theory syllabus

Unit	Content	Hrs
1	**iOS Fundamentals** Introduction to Apple OS family ,Mac versions and features, iOS version and features , Mobile App comparison, iOS architecture and frameworks, Cocoa Vs Cocoa Touch , MVC framework, Understanding the playground, xcode ,simulator and IB interface, NIB file and Storyboard	7
2	**Swift Basics** Introduction to objective-c, H file ,M file, Swift features, Variable, Constant, Swift Data type, Operators, Type safety, Type inference ,Optional type, Optional binding, Collection type and Tuple, Flow control [if and switch], Loops [for-in, for , while and repeat-while], Control transfer statements ,Trying out swift in playground	9
3	**Understanding Classes, Objects, Methods** Function, Closures, Enumerations , Structure , Class , Defining instances, Accessing properties, Properties – stored and computed properties, Property observer, Defining instance property, self-property, Inheritance, Sub classing, Dynamic typing, Overriding method and property, Accessing Superclass Methods and Properties, Preventing overriding, initialization and deinitialization	10

4	**Understanding Extensions, Error Handling, ARC** Optional chaining, Type casting, Error handling ,Extensions, Protocols, Access Control, ARC[Automatic reference connecting] Understand iOS memory management	9
5	**Introduction to UIKit Framework** Application Component, Design Pattern –MVC,MVP,MVVM,Delegate Pattern ,App Delegate , iOS App life cycle, UI Elements, Connecting View and Controller, Auto Layout , Size class, Stack view, Interface Development	10
Practical content		
List of programs specified by subject teacher based on above mention topics.		
Text Books		
1.	iOS 11 Programming Fundamentals with Swift By Matt Neuburg Publisher: O'Reilly Media	
Reference Books		
1.	Swift Cookbook by Cecil Costa Packt Publishing Limited	
2.	Beginning Swift Programming (WROX) by Wei-Meng Lee	
Note for Examiner		
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Paper Structure		
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Semester	I	Version	1.0.0.0
Effective from Academic Year	2018-2019	Effective for the batch Admitted in	June 2018
Subject code	P21B4CDP1	Subject Name	CAREER DEVELOPMENT AND PLANNING-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	-	-	-

Pre-requisites:

Basic knowledge of Computer Programming.

Learning Outcome:

After learning this course, the students should be able to

- Crack the interview question of core programming and scripting language – C, C++,Java, Php
- Crack the interview question of Networking, Linux, OS and Database and DS
- Understand the style of interview questions
- Know common interview questions
- Prepare for the technical interview

Theory syllabus

Unit	Contents	Hrs.
1	**Programming Basics** Operators and Expression, Control Statements, Array Iteration, Call by reference and Call by value, Static variable and function ,Storage Classes ,Pointer Friend function, Inline function, Virtual Function, Function and Operator Overloading, Structure vs. Class, Constructor, Copy Constructor, Storage qualifiers , Solution of Common C problem	9
2	**Object Oriented Programming Concepts** Classes and Object, Encapsulation, Polymorphism, Inheritance, Abstraction, Overloading and Overriding, final, super ,this, exception and error handling, Generic interface, Anonymous Classes , Adapter Class, Inner class, Multithreading in Java	9
3	**Web Designing Concepts** HTML 5, CSS3, JavaScript, XML	9
4	**Operating System and Data Structure** UNIX commands, Type of Shell. Data Structure: Stack, Queue, Linked List, Tree, Graph, BFS, DFS, Sorting and Searching techniques, Complexity of algorithm and Code optimization	9
5	**Database Commands and General Knowledge of ICT** Normalization, Functions, procedure, trigger, Group by and Having Clause, Joins, dual,	9

	Nesting query, ICT, Overview of Cloud computing, Big Data and IoT, Gujarat and Indian Govt. projects & schemes, Upcoming trends in IT Industry	
Text Books		
1.	-	
Reference Books		
1.	Web Reference: www.indiabix.com	
2.	Web Reference: placement.freshersworld.com	
3.	Cracking the C, C++ and Java Interview by S.G. Ganesh	
4.	Cracking the Coding Interview: 189 Programing Questions and Solutions by Gayle Laakmann McDowell	
Note for Examiner		
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Paper Structure		
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