PROPOSED STRUCTURE

	GANPAT UNIVERSITY
	FACULTY OF COMPUTER APPLICATION
	TEACHING AND EXAMINATION SCHEME

Programme	M.Sc.(IT)	Branch/Spec.		Department of Computer Science		
Semester	II					
Effective from Academic Year	2020-21	Effective for the batch Admitted in				JUNE-2020

Subject Code	Subject Name	Teaching scheme														Examination scheme (Marks)					
		Credit						Hours (per week)								Theory			Practical		
		Lecture(DT)			Practical(Lab.)			Lecture(DT)			Practical(Lab.)				CE	SEE	Total	CE	SEE	Total		
		L	TU	Total	P	TW	Total	L	TU	Total	P	TW	Total								

P42A1UML	Unified Modeling Language	3	-	3	-	-	-	3	-	3	-	-	-	40	60	100	-	-	-
P42A2WD2	Web Designing - II	3	-	3	2	-	2	3	-	3	4	-	4	40	60	100	20	30	50
	Elective-II	3	-	3	2	-	2	3	-	3	4	-	4	40	60	100	20	30	50
	Elective-III	3	-	3	2	-	2	3	-	3	4	-	4	40	60	100	20	30	50
	Total	12	-	12	6	-	6	12	-	12	12	-	12	160	240	400	60	90	150

List of Electives						
	Course Code	Course Name	Th.	Tu.	P	C
	P42A3DAT	Data Analytics Using Tools	3	-	2	5
	P42A3WP2	Advance Web Programming – II	3	-	2	5
Elective-II	P42A3AT2	Advance Technology – II (.Net)	3	-	2	5

	P42A3JP2	Java Programming Techniques-II	3	-	2	5
	P42A3CS	Cyber Security	3	-	2	5
Elective-III	P42A4DAV	Data Analysis and Visualization	3	-	2	5
	P42A4DMM	Digital Media Marketing	3	-	2	5
	P42A4EC	Ecommerce Technology	3	-	2	5
	P42A4AAD	Android Application Development	3	-	2	5
	P42A4IAD	IPhone Application Development	3	-	2	5
	P42A4CS1	Cyber Security-I	3	-	2	5

Name of PO	Description
PO - 1	Software development for implementing real time projects
PO -2	Utilize understanding of the theory and computer applications overview
PO -3	To solve software & hardware problems
PO -4	Utilize the techniques, skills and modern computer tools, Software and techniques necessary for computer application development
PO -5	Develop diff. parts of computer application projects or industrial computing
PO -6	Generate solutions by experiments and applying techniques to analyze and interpret data for the computer
PO -7	Evaluate, verify, trouble-shoot, test and analyze an existing computer-based system, process, component or program.
PO -8	Utilization of team work
PO -9	Express effective communication skills.
PO -10	Recognize the need for, and an ability to engage in life-long learning
PO -11	Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.
PO -12	Design research problems and contribute to the society

M.Sc IT (PSO)	
PSO-1	To develop the culture of augmenting existing technologies to create scalable IT solutions.
PSO-2	To combine various technologies like IoT, Cloud and Analytics to provide integrated solutions to real time problems of government /industries.
PSO-3	Effectively integrate IT-based solutions into the user environment.
PSO-4	Use and apply current technical concepts and practices in the core Information Technologies of human computer interaction, information management, programming, networking.

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FACULTY OF COMPUTER APPLICATON

Programme	Master of Computer Science (Information Technology)	Branch/Spec.	---	
Semester	II		Version	1.0.0.0

Effective from Academic Year	2020-21	Effective for the batch Admitted in		JUN-2020
Subject code	P42A1UML	Subject Name	Unified Modeling Language	

Teaching scheme					Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW				
Credit	3	-	-	-	03	Theory	40	60	100
Hours	3	-	-	-	03	Practical	-	-	-

Objective:

- To teach the students a solid foundation on object-oriented principles
- To teach the student the essential and fundamental aspects of objectoriented analysis and design, in terms of "how to use" it for thepurpose of specifying and developing software.
- To Explore and analyze different analysis and design models, such OOModels, Structured Analysis and Design Models, etc.

Pre-requisites:

Knowledge of Business Process, Software Development Process, Knowledge of OOPs Programming, Database

Learning/Course Outcome:

By the end of the course, Student should:

Possess an ability to practically apply knowledge software engineering methods, such as object-oriented analysis and design methods with a clear emphasis on UML.

- Have a working ability and grasping attitude to design and conduct object-oriented analysis and design experiments using UML, as well as to analyze and evaluate their models.
- Have a capacity to analyze and design software systems, components to meet desired needs.

COs	Description
CO1	To learn and understand about the conceptual model, Building Blocks, diagram rules, SDLC in UML.

CO2	Knowing about Structural Modeling including class operations, Responsibilities and Relationships.	
CO3	To learn and analyze the class diagrams, Packages, Interface Types and Roles	
CO4	Students will be able to examine and Implement all of the UML Diagram such as Use Case Diagrams, Interaction Diagram and Activity Diagram	

CO-PO Mapping

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	1	2	1	1	1	1	0	2	2	1
CO2	3	2	1	2	2	2	2	2	0	2	2	1
CO3	2	2	1	3	2	1	2	1	0	2	2	1
CO4	3	2	2	3	3	2	2	2	1	2	2	1

Theory syllabus

Unit	Content	Hrs
1	**Introduction to UML:** An Overview, A Conceptual Model: Building Blocks- Things, Relationship, Diagrams., Rules, Common Mechanisms, Architecture, Software Development Life Cycle, UML Modeling with example	09
2	**Basic Structural Modeling:** Classes: Names, Attributes, Operations, Organizing Attributes and Operations, Responsibilities Advanced Classes: Classifiers, Visibility, Scope, Abstract Root Leaf and Polymorphic Elements, Multiplicity, Attributes, Operations, Template Classes, Standard Elements., Relationships: Dependency, Generalization, Association., Advanced Relationships: Dependency, Generalization, Association, Realizations.	11
3	**Advanced Structural Modeling**: **Class Diagrams:** Common Properties, Contents, Common Uses, Common Modeling Techniques, Forward and Reverse Engineering., **Interface Types and Roles:** Names, Operations, Relationships, Understanding an Interface, Types and Roles., **Packages:** Names, Owned Elements, Visibility, Importing and Exporting, Generalization, Standard Elements	11
4	**Behavioral Modeling**: **Interactions:** Context, Object and Roles, Links, Messages, Sequencing, Creation, Modification and Destruction, Representation., **Use Cases:** Names, Use Cases and Actors, Use Cases and Flow of Events, Use cases and Scnarios, Use Cases and Collaborations, Organizing Use Cases., **Use Case Diagrams:** Common Uses, Common Modeling Techniques, **Interaction Diagram:** Sequence Diagram, Collaboration Diagram, **Activity Diagram:** Action and Activity States, Transactions, Branching, Forking and Joining, Swimlanes, Object Flow	14

Practical content

	N.A.

Text Books:

1	The Unified Modeling Language User Guide By GradyBooch, James Rumbaugh, Ivar Jacobson Low Price Edition-Pearson Publication

Reference Books:

1	Software Engineering By Roger S. Pressman Fifth Edition McGraw Hill Publications.
2	UML Bible by Tom Pender ,Publishing Inc.
3	Teach Your Self UML in 24 hours by Joseph Schmuller, Pearson Education.

MOOC References:

1	https://www.edx.org/course/uml-class-diagrams-for-software-engineering
2	https://www.coursera.org/learn/object-oriented-design

Web References:

1	https://www.tutorialspoint.com/uml/index.htm
2	https://www.javatpoint.com/uml
3	https://www.lucidchart.com/

Question Paper Scheme:

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: UNIT-1 (06 marks))

Q-3 (Must be from topics: UNIT-2 (08 marks))

Q-4 (Must be from topics: UNIT-3 (08 marks))

Q-5 (Must be From topics: UNIT-4 (08 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

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FACULTY OF COMPUTER APPLICATON

Programme	Master of Computer Science (Information Technology)		Branch/Spec.	---	
Semester	II		Version	1.0.0.0	
Effective from Academic Year	2020-21		Effective for the batch Admitted in		JUN-2020
Subject code	P42A2WD2	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	-	05	Theory	40	60	100
Hours	3	-	4	-	07	Practical	20	30	50

Objective:

AngularJS is a basic structure for making dynamic web applications. HTML is an extraordinary revelatory language for static pages. It doesn't contain much for making a unique applications. So Angular will fill that gap. Precise's information official and reliance infusion wipe out a significant part of the code than we would really compose. Best of all, everything occurs in the program by making it a perfect cooperate with any server innovation.

Pre-requisites:

Good knowledge of HTML4.0 and java script.

Course Outcomes :

Cos	Description
CO1	Understanding basic concepts of Angular JS ,environment, attributes, arraysand data binding
CO2	Understanding fundamentals of modules, directives, controllers, expressions and scope of Angular JS
CO3	Learn how to create forms, filters, form validations, Services and different typesof events in Angular JS

CO4	Creation of Animations like HTML DOM, Tables, APIs and Routing like routeparams, redirection in Angular JS

Mapping of CO and PO:												
Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	1	3	3	2	2	2	1	2	1	2
CO2	3	2	1	3	2	2	2	1	0	1	1	1
CO3	3	2	2	3	3	2	3	1	1	2	1	2
CO4	3	2	1	3	3	0	1	2	1	3	0	2

Learning Outcome:

After completing this course, students should be able to:

- Decrease the amount of code you write to build rich user interface applications.
- Increase the reliability and maintainability of UI by using data binding.
- Repossess data from back-end server, manipulate it and display it with ease.
- Modularise your code with the custom services and directives.
- Providing two way binding of data.
- Develop Single Page Applications (SPA)

Theory syllabus

Unit	Content	Hrs
1	**Introduction to AngularJS and Architecture** MVC Architecture, Conceptual Overview, Setting up the Environment, First Application, Understanding ng attributes, Number and String Expressions, Object Binding and Expressions, Working with Arrays, Forgiving Behaviour, Understanding Data binding	9
2	**Working with Modules, Directives, Controllers, Expressions, and Scope:** Modules : Create, Adding controller, Adding Directories, Modules and Controllers in file, Directives : ng-app, ng-init, ng-model, ng-repeat, data binding, Controllers: ng-controller, controller methods, Angular js expressions : numbers, strings, objects, arrays, Scope: Understanding the scope, root scope	11
3	**Filters, Forms, Services, Events** Filters : built-in filters, Adding filters to expressions, Adding filters to Directives, Custom Filters, Form: Input Control (Input, Select, Button, Textarea), Form Validations,	13

	Services: $http, $timeout, $interval, Events : ng-Click, Mouse, Toggle, $event Object	
4	**AngularJS Animations & Routing** **Animation** AngularJS - HTML DOM, AngularJS – Tables, Angular JS - Global API, AngularJS - CSS, AngularJS - Animate library, Working with ngAnimate, **Routing** AngularJS - ng-view**,** AngularJS - The config function**,** AngularJS - $routeProviderapi **,**AngularJS - $routeParams**,** AngularJS –redirectTo**,**AngularJS – ResolveAngularJS - Resolve conventions	12

Practical content
List of programs on the above mentioned topics as per decided by subject faculty

Text Books	
1	Beginning-AngularJS Andrew Grant Apress
2	Angular js starter by Dan Menard from packt publishing

Reference Books	
1	Recipes with Angular JS by Frederik Dietz beta version
2	Angular 2+ Notes for Professionals book
3	AngularJS in Action LUKAS RUEBBELKE with BRIAN FORD
4	Angular JS By Brad Green, ShyamSheshadri O'Reilly Publications

MOOC/Certification Courses	
1	**Introduction to AngularJS :https://alison.com/course/introduction-to-angularjs**
2	**AngularJS For Beginners**:https://www.udemy.com/course/angularjs-for-beginners-udemy/
3	**LinkedIN learning: Become an AngularJS Developer:https://www.linkedin.com/learning/paths/become-an-angularjs-developer**
4	Learn AngularJS 1.X:https://www.codecademy.com/learn/learn-angularjs
5	http://www.learn-angular.org/

6	
Question Paper Scheme:	

	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 from all possible section. Q-2 (Must be from topics: UNIT-1(07marks)) Q-3 (Must be from topics: UNIT-2(07marks)) Q-4 (Must be from topics: UNIT-3(08marks)) Q-5 (Must be from topics: UNIT-4(08marks))

Note:

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FACULTY OF COMPUTER APPLICATON

Programme	Master of Computer Science Information Technology		Branch/Spec.	---	
Semester	II		Version	1.0.0.0	
Effective from Academic Year		2020-21	Effective for the batch Admitted in		JUN-2020
Subject code	P42A3DAT	Subject Name	(Elective-II) Data Analytics Using Tools		

Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	2	-	05	Theory	40	60	100
Hours	3	-	4	-	07	Practical	20	30	50

Objective:

This subject is focus on Machine Learning and data analytics techniques. It focus on different tools and techniques related implementations. It gives the insight of machine learning to students. Student get the idea and aware with strength of machine learning.

Pre-requisites:

Basic knowledge of analytical skills.

Course Outcomes :

COs	Description
CO1	Able to develop understanding of ML techniques.
CO2	Learn the model measurement diagnostics.
CO3	Understand python ML libraries and apply regression models.
CO4	Understand python ML libraries and apply classification models.

Mapping of CO and PO												
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	0	2	0	2	2	0	2	2	3
CO2	3	2	2	0	2	0	2	2	0	3	2	3

CO3	2	2	3	1	3	1	2	2	1	2	2	3
CO4	3	3	3	2	3	1	2	2	1	1	0	3

Theory syllabus

Unit	Content	Hrs
1	**Data Preparation (12)** Data Gathering and Preparation: Data formats, parsing and transformation, Scalability and real-time issues, Data Cleaning: Consistency checking, Heterogeneous and missing data, Data Transformation and segmentation, Exploratory Analysis: Descriptive and comparative statistics,	12
2	**Data Analytics using EXCEL (11)** Install and Understand the Data Analytics Pack Importing Data and formats supported Data Pre-processing with EXCEL Data visualisation in EXCEL Co-relation & Regression Analysis and statistically method support Apply Moving Average Exponential MA	11
3.	**Data Analytics using KNIME Tool (11)** Install and Understand the Open source tool KNIME Importing Data and formats supported Data Pre-processing with KNIME Data visualisation in KNIME Co-relation & Regression Analysis and statistically method support Apply any Classification model Apply any Cluster based model	11
4.	**Data Analytics using WEKA Tool (11)** Install and Understand the Open source tool WEKA Importing Data and formats supported Data Pre-processing with WEKA	11

	Data Visualisation
	Classification demo
	Clustering Demo
	Association Demo

Practical content	
List of programs on the above mentioned topics as per decided by subject faculty	

Text Books	
1	Hands-On Machine Learning with Microsoft Excel 2019: Build Complete Data Analysis Flows, From Data Collection to Visualization Book by Julio Cesar Rodriguez Martino
2	https://medium.com/analytics-vidhya/part-1-data-preparation-made-easy-with-python-e2c024402327
3	https://www.youtube.com/watch?v=mc5DBLCkEXw

Reference Books	
1	https://www.knime.com/knimepress/practicing-data-science
2	https://www.cs.waikato.ac.nz/ml/weka/

MOOC/Certification Courses	
1	https://www.udemy.com/course/data-analysis-with-excel/
2	https://www.coursera.org/browse/data-science/data-analysis

Question Paper Scheme:	
	Question Paper Scheme: University Examination Duration: 3 Hours **Paper Structure** Q-1 (Attempt any Six Out of Eight: each question must be 5 marks) --- 30 Questions must be covered all possible Topics. Q-2 (Must be from topic:1 (**Data Preparation**)(6 Marks)) Q-3 (Must be from topic: 2 (**Data Analytics using EXCEL**) (9 Marks)) Q-4 (Must be from topic: 3 (**Data Analytics using KNIME Tool**) (6 Marks)) Q-5 (Must be from topic:4 (**Data Analytics using WEKA Tool**) (9 Marks))

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FACULTY OF COMPUTER APPLICATION

Programme	Master of Computer Science (Information Technology)	**Branch/Spec.**	----	
Semester	II	**Version**	1.0.0.0	
Effective from Academic Year	2020-21	**Effective for the batch Admitted in**	JUN-2020	
Subject code	P42A3WP2	**Subject Name**	Advance Web Programming – 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 understand the concept of framework

It makes coding in PHP simple, quick and user-friendly.

It underpins the Model/View/Controller (MVC) approach to web development

Pre-requisites:

Basic programming knowledge of PHP with HTML

Learning Outcome:

Cos	Description
CO1	To understand the use of Model-View-Controllerpattern using PHP CodeIgniter Framework
CO2	Use and execute the function assist in working with forms.
CO3	Usage and apply PHP CodeIgniter for CRUD Operation.

CO4	Use and applyadvance Helpers - collections of useful procedural functions.

Mapping of CO and PO:

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	2	1	0	1	1	1	1	2	1	0	0
CO2	1	3	2	1	2	3	2	2	1	2	1	1
CO3	1	3	3	1	3	3	2	3	1	2	1	1
CO4	1	3	2	1	2	3	1	1	1	1	0	1

Theory syllabus

Unit	Content	Hrs
1	**Initial Setup and Configuration** Overview, CodeIgniter Features, install CodeIgniter, CodeIgniter - Application Architecture, Directory Structure, CodeIgniter - MVC Framework	08
2	**Form Management using MVC** Basic Concepts – Controllers, Views and Model, Form Validation, Flashdata, Session Management, Cookie Management, Page Redirection, Configuring Base URL, Database Configuration, Autoload Configuration,	15
3	**Working with Database and Error handling** Connecting to a Database, Selecting a Record, Inserting a Record, Updating a Record, Deleting a Record, CodeIgniter – Libraries, Overview of Library Class & Description, Error Handling	10
4	**Library Classes** File Uploading, Sending Email, Image Manipulation Class, Encryption Class, Pagination Class, CodeIgniter – Security	12

Practical content

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

Text Books

1	Codeigniter for Rapid PHP Application Development, David Upton, PACKT Publishing

Reference Books

1	Practical CodeIgniter 3, Lonnie Ezell , Lean Publishing

2	Web Reference : https://www.codeigniter.com
3	Web Reference : https://www.tutorialspoint.com/codeigniter

MOOC/Certification Courses	
1	https://codeigniter.com/userguide3/DCO.html
2	https://www.udemy.com/course/php-codeigniter/
3	https://www.ncsacademy.com/certification/php.cfm
4	https://ranksheet.com/online-exams/PHP_10
5	https://www.studysection.com/certification-exams
6	https://alison.com/courses?query=php

Note:

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Programme	Master of Computer Science (Information Technology)		Branch/Spec.	---	
Semester	II		Version	1.0.0.0	
Effective from Academic Year		2020-21	Effective for the batch Admitted in		JUN-2020
Subject code	P42A3AT2	Subject Name	(Elective-II) Advance Technology – II(.Net)		

Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	2	-	05	Theory	40	60	100
Hours	3	-	4	-	07	Practical	20	30	50

Objective:

To learn the fundamentals of web developing. This course provides a practical hands-on introduction to developing Web applications using ASP.NET Core MVC with C#. Acquiring sufficient knowledge on role of Model, View and Controller in integrating them to develop complete web application Access databases and performing CRUD operations using LINQ and Entity Framework.

Pre-requisites:

The student should have a good working knowledge of HTML and the .NET Framework. Basic knowledge of ASP.NET Web Forms is recommended.

Course Outcomes :

COs	Description
CO1	Understand MVC design pattern
CO2	Know the concepts of ASP.NET core MVC
CO3	To create Model, View and Controller
CO4	Able to develop dynamic web application by using ASP.NET core MVC
CO5	Able to develop Web API by using ASP.NET core MVC

Mapping of CO and PO												
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	0	0	3	1	1	0	0	0	1	1	0

CO2	2	1	0	3	2	1	1	0	0	1	2	1
CO3	1	3	0	2	2	0	0	2	0	0	1	0
CO4	3	2	0	3	3	2	2	3	1	2	2	1
CO5	3	2	0	3	3	2	2	3	0	2	2	1

Learning Outcome:

After completing this course, students should be able to:

Get to know the concepts of ASP.NET core MVC and build a new static web page using HTML,
CSS, and jQuery
Create a Controller with action methods.
Build a view using several features of the Razor View engine.
Construct a Model for ASP.NET Core MVC application.
Develop complete web application Access databases and performing database operations using
LINQ and Entity Framework

Theory syllabus

Unit	Content	Hrs
1	**ASP.NET Core MVC** ASP.NET Core MVC Introduction, ASP.NET Core - MVC Design Pattern, Routing, Attribute Routes, Action Results, Razor Layout Views, Create a web app with ASP.NET Core MVC, Add a controller, Add a view, Add a model, Work with SQL Server LocalDB, Controller methods and views, Add search, Add a new field, Add validation, Examine the Details and Delete methods	12
2	**ASP.NET Core MVC with Entity Framework Core** Get started, Create, Read, Update, and Delete operations, Sorting, filtering, paging, andgrouping, Migrations, Create a complex data model, Reading related data, Updating related data	11
3	**Areas in ASP.NET Core** Areas for controllers with views, Area folder structure, Add Area route, Link generation with MVC areas, **Filters in ASP.NET Core** How filters work, Filter types - Authorization filters, Action filters, Result filters, Exception filters, Resource filter, Filter Attributes	11
4	**Web API with ASP.NET Core MVC** Introduction to Web API, Create a web API project, Add a model class and a database context, Scaffold a controller with CRUD methods,Configure routing, URL paths, and	11

	return values,Call the web API with Postman, Consume Web API with JavaScript	

Practical content	
List of programs on the above mentioned topics as per decided by subject faculty	

Text Books	
1	ASP.NET Core 2.0 MVC and Razor Pages for Beginners

Reference Books	
1	Pro ASP.NET Core MVC, Adam Freeman, Apress
2	Pro Entity Framework Core 2 for ASP.NET Core MVC, Adam Freeman, Apress
3	Web Reference - https://docs.microsoft.com/

MOOC/Certification Courses	
1	http://www.edx.org/course/program-a-server-side-application-using-aspnet-cor
2	MCSA: Web Applications Microsoft Certified Solutions Associate Exam 70-480/Course 20480 Programming in HTML5 with JavaScript and CSS3 Exam 70-483 Programming in C# Credit toward certification: MCSA Exam 70-486/Course 20486 Developing ASP.NET MVC Web Applications

Question Paper Scheme:

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: UNIT-1 (10 marks)) Q-3 (Must be from topics: UNIT-2 (06 marks))

Q-4 (Must be from topics: UNIT-3 (06 marks)) Q-5 (Must be From topics: UNIT-4 (08 marks))

Note:

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L=Lecture, TU=Tutorial, P= Practical/Lab., TW= Term work, DT= Direct Teaching, Lab.= Laboratory work

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Semester	II	Version	1.0.0.0	
Effective from Academic Year	2020-21	Effective for the batch Admitted in		JUN-2020
Subject code	P42A3JP2	Subject Name	(Elective-II) Java Programming Techniques -II	

Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	2	-	05	Theory	40	60	100
Hours	3	-	4	-	07	Practical	20	30	50

Objective:

This course develops programming ability of students to create dynamic web applications using server side technology with Java Database Connectivity. Different Java frameworks like Java Server Faces and Hibernate will increase ability of students in web application development.

Pre-requisites:

Basic knowledge of core Java.

Course Outcomes :

COs	Description
CO1	Able to develop understanding of servlet techniques.
CO2	Make web base Application using sevlet and JSP
CO3	Make web base Application using JSF with JDBC
CO4	Able to develop understanding of Hibernate FrameWork.

Mapping of CO and PO												
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	0	2	0	2	2	0	1	1	3
CO2	3	2	2	0	2	0	2	2	0	1	1	3

CO3	2	2	3	2	3	1	2	2	0	1	1	3
CO4	3	3	3	2	3	1	2	2	0	1	1	3

Learning Outcome:

After completing this course, students should be able to:

Gain the knowledge of Server Side programing by implementing Servlet and JSP.

Create dynamic web pages, using Servlets and JSP.

Design and Develop various application by Integrating any of Servlets, JSPs using Database

Gain knowledge of frameworks such as JSF and Hibernate Architecture, Distinguish JDBC and Hibernate.

Use JSF frameworks, which gives the opportunity to reuse the codes for quick development.

Map Java classes and object associations to relational database tables with Hibernate mapping files.

Theory syllabus

Unit	Content	Hrs
1	**Servlet** Introduction of servlet, Servlet Life Cycle,Servlet API, GenericServlet, HttpServlet, servletRequest method, RequestDispatcher, sendRedirect,Reading Form Data from Servlets, Session Tracking: Cookies, Hidden Form field, URL Rewriting, HttpSession.	7
2	**JSP** Introduction of JSP, Advantages of JSP over Servlet, Life cycle of JSP, JSP API, Scriplet Elements, Implicit Objects, Directive Elements, Action Elements. **JDBC with JSP and Servlets** JDBC Examples using Servlets and JSP.	14
3	**Java Server Faces MVC Frameworks and JDBC** JSF Framework Services, Message Bundles, Bean Scopes, Static Navigation, Dynamic Navigation, Panels, The Head, Body, and Form Tags, Text Fields and Text Areas, Buttons and Links, At least five Selection Tags, The Data Table Tag–h:dataTable, A Simple Table, Headers, Footers, and Captions, Editing Tables, Database Tables, Overview of the Conversion and Validation Process, Using Standard Converters, Using Standard Validators, Events and the JSF Life Cycle, Value Change Events, Using database CRUD operations like INSERT, UPDATE, DELETE, SELECT with java server faces.	14

4	**Hibernate** Overview of Hibernate, Hibernate Architecture, Hibernate Mapping Types, Working with Object, Persistent, Entity, Relation (ORM), Hibernate APIs, Mappings: Basic Mapping, Primary Key Mapping and Relational Mapping, Hibernate Annotation, Hibernate Query Language, Using database CRUD operations like INSERT, UPDATE, DELETE, SELECT with hibernate.	10

Practical content

List of programs on the above mentioned topics as per decided by subject faculty

Text Books

1	Core Servlets and Java Server Pages Volume1 and 2, Second Edition, 2004 By Marty Hall and Larry Brown, PEARSON Education
2	Core Java Server Faces, Third Edition, 2011 By David Geary and Cay Horstmann, PEARSON Education

Reference Books

1	The Complete Reference Java Server Faces 2.0 Edition 2010 By EdBurnsand Chris Schalk, Tata McGraw-Hill
2	Guide to Java Persistence and Hibernate, by Sebastian Hennebrueder.
3	Java Persistence and Hibernate, Christian Bauer and Gavin king by Linda 3 DeMichiel.

MOOC/Certification Courses

1	https://intellipaat.com/java-training/
2	https://www.udemy.com/course/hibernate-and-java-persistence-api-jpa-fundamentals/

Question Paper Scheme:

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: Servlet (5 marks))

Q-3 (Must be From topics: JSP (7 marks))

	Q-4 (Must be From topics: Java Server Faces MVC Frameworks and JDBC (10 marks))
	Q-5 (Must be From topics: Hibernate (8 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 APPLICATIONS

Programme	Master of Computer Science (Information Technology)		Branch/Spec.		
Semester	II		Version	1.0.0.0	
Effective from Academic Year		2020-21	Effective for the batch Admitted in		June 2020
Subject Code	P42A3CS		Subject Name	(Elective-II) Cyber Security	

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:

Students able to learn following things

- Understand the fundamentals of Cyber Security conecpts
- Able to learn the various application security
- Understand about the developing Secure Information Systems
- Able to learn the security policies.

Pre-requisites:

Basic knowledge of computer

Course Outcome:

Name of CO	Description
CO1	To learn and understand about the fundamentals of Cyber Security concepts.
CO2	Knowing about the various application of the security, threats and Viruses.
CO3	To learn and analyze about the developing various Secure Information Systems and its Backup Security Measures.
CO4	Students will be able to examine and implement several security policies.

		Mapping of CO and PO										
Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	1	3	2	2	1	2	0	1	2	2
CO2	1	2	2	2	1	2	2	2	0	1	1	2
CO3	2	3	2	3	2	3	3	2	0	2	2	3
CO4	2	3	2	3	3	2	2	3	0	2	3	3

Content:

Unit		Hrs
1	**Introduction:** Introduction to Information Systems, Types of Information Systems,	12

	Development of Information Systems, Introduction to Information Security, Need for Information Security, Threats to Information Systems, Information Assurance, Cyber Security.		
2	**Application Security:** Database, E-mail and Internet, Data Security Considerations-Backups, Archival Storage and Disposal of Data, Security Technology-Firewall and VPNs, Intrusion Detection, Access Control. Security Threats -Viruses, Worms, Trojan Horse, Bombs, Trapdoors, Spoofs, E-mail Viruses, Macro Viruses, Malicious Software, Network and Denial of Services Attack, Security Threats to E-Commerce- Electronic Payment System, e- Cash, Credit/Debit Cards. Digital Signature, Public Key Cryptography		12
3	**Developing Secure Information Systems:** Application Development Security, Information Security Governance & Risk Management, Security Architecture & Design Security Issues in Hardware, Data Storage & Downloadable Devices, Physical Security of IT Assets, Access Control, CCTV and Intrusion Detection Systems, Backup Security Measures.		12
4	**Security Policies:** Development of Policies, WWW Policies, Email Security Policies, Policy Review Process-Corporate Policies-Sample Security Policies, Publishing and Notification Requirement of the Policies.		09

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

Text Books:	
1	1. Charles P. Pfleeger, Shari Lawerance Pfleeger, "Analysing Computer Security", Pearson Education India.
2	2. V.K.Pachghare, "Cryptography and information Security", PHI Learning Private Limited, Delhi India.
3	3. Sarika Gupta & Gaurav Gupta, Information Security and Cyber Laws, Khanna Publishing House
4	4. Anshul Kaushik, Cyber Security, Khanna Publishing House

Web Reference/Mooc:	
1	https://www.coursera.org/learn/cryptography
2	https://mooc.kennesaw.edu/courses/cybersecurity.php
3	https://www.edx.org/course/cybersecurity-fundamentals

Question Paper Scheme:
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   **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 Unit-1 (8 marks))   Q-3 (Must be from Unit-2 (8 marks))   Q-4 (Must be from Unit-3 (8 marks))   Q-5 (Must be from Unit-4 (6 marks))

GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATON

Programme	Master of Computer Science (Information Technology)		Branch/Spec.	---	
Semester	II		Version	1.0.0.0	
Effective from Academic Year		2020-21	Effective for the batch Admitted in		JUN-2020
Subject code	P42A4DAV	Subject Name	(Elective-III) Data Analysis And Visualization		

Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	2	-	05	Theory	40	60	100
Hours	3	-	4	-	07	Practical	20	30	50

Objective:

To gain an insight into the 'Roles' played by a mongoDB expert. Learn how to design Schema using Advanced Queries. Understand basic and advance MongoDB features, and data visualization using the MongoDb Charts.

Pre-requisites:

The student should have a should have a basic understanding of database,text editor and execution of programs, etc. Because we are going to develop high performance database, so it will be good if you have an understanding on the basic concepts of Database (RDBMS).

Course Outcomes :

Cos	Description
CO1	Students will able to learn the basic concepts of MongoDB and NoSQL
CO2	Students will able to learn the MongoDB Structure concepts like manage the Database and manage the Document
CO3	Students will able to learn the manage advanced MongoDB structure concepts.
CO4	Students will able to learn about the Data Visualization using various MongoDB Charts.

Mapping of CO and PO:

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

CO1	0	1	1	2	2	2	1	1	1	2	1	2
CO2	0	1	3	3	2	2	2	1	1	2	1	1
CO3	1	2	1	1	2	2	1	1	1	1	1	2
CO4	2	2	1	0	0	3	2	1	0	2	1	3

Learning Outcome:

After completing this course, students should be able to:

- Students get basic understanding of database.
- Students will be able to write Map-Reduce based Applications
- Students will learn difference between conventional SQL query language and NoSQL basic concepts.
- Students will be get basic idea to work in MongoDB.
- Students will be able to get basic statistics and data analysis and visualization skills using MongoDB Charts.

Theory syllabus

Unit	Content	Hrs
1	**Introduction to MongoDB and NoSQL** **MongoDB:** Introduction: What is MongoDB? Why MongoDb? (using JSON, Creating or generating a unique key, Support for Dynamic Queries, Storing Binary Data, Replication, Sharding, Updating information in place), Advantages of MongoDB, Terms used in RDBMS and MongoDB, Data types in MongoDB, MongoDB Query Language **NoSQL:** Introduction: Where is it used? What is it? Types of NoSQL databases, Why NoSQL? Advantages of NoSQL, Use of NoSQL in Industry, SQL vs NoSQL, NewSQL	12
2	**MongoDB Structure** Database, Collection, Document, Create Database, Drop Database, Create Collection, Drop Collection, Insert Document, Update Document, Delete Document Query Document: find(), pretty(), limit(), skip(), sort(), ensureIndex(), aggregate()	10
3	**Advanced MongoDB** Relationships, Database References, Covered Queries, ObjectId, MapReduce, Text Search, Regular Expression, Auto-Increment Sequence	10
4	**Data Visualization: MongoDB Charts** Features of MongoDB Charts, Elements of MongoDB Charts, Launch MongoDB Charts, Chart Types : Column and Bar Charts, Line and Area Charts, Grid Charts: Heatmaps, Scatter Charts, Text Charts: Data Tables, Number Charts, Word Clouds , Geospatial Charts	13

Practical content

List of programs on the above mentioned topics as per decided by subject faculty

Text Books

1	MongoDB: The Definitive Guide, Second Edition by Kristina Chodorow, Published by O'Reilly Media, Inc.
2	Mongodb In Action, Second Edition By Kyle Banker, Peter Bakkum, Shaun Verch, Douglas Garrett, Tim Hawkins, Manning Publications Co.

Reference Books	
1	Kyle Banker,Peter Bakkum,Shaun Verch,Douglas Garrett,Tim Hawkins,"MongoDB in Action", DreamTech Press, 2nd Edition ,2016
2	Shashank Tiwari, "Professional NoSQL", Wiley India Pvt. Ltd.,2011.
MOOC/Certification Courses	
1	https://www.coursera.org/learn/introduction-mongodb
2	https://www.edureka.co/mongodb-certification-training
Question Paper Scheme:	
	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: UNIT-1 (06 marks)) Q-3 (Must be from topics: UNIT-2 (08 marks)) Q-4 (Must be from topics: UNIT-3 (08 marks)) Q-5 (Must be From topics: UNIT-4 (08 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)

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CE= Continuous Evaluation, SEE= Semester End Examination

GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATON

Programme	Master of Computer Science (Information Technology)	Branch/Spec.	---	
Semester	II	Version	1.0.0.0	
Effective from Academic Year	2020-21	Effective for the batch Admitted in	JUN-2020	
Subject code	P42A4DMM	Subject Name	(Elective-III) Digital Media Marketing	

Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	2	-	04	Theory	40	60	100
Hours	3	-	4	-	07	Practical	20	30	50

Objective:

Digital Media Marketing nowadays is basically used for promotion of products or brands via one or more form of electronic media, you can consider it as online marketing, internet marketing or web marketing.

Pre-requisites:

Basic knowledge of computer, Internet and Social Media Platforms

Course Outcomes:

Cos	Description
CO1	Knowledge of basic concepts of E-commerce with traditional marketing, Digital Media Marketing and their categories
CO2	Knowledge of basic concepts of SEO, SMO and different genres of social media platform for digital Marketing, blogging and social media marketing tools
CO3	Knowledge of Email marketing and various tools with autonomous terminologies
CO4	Knowledge of google promotional activities for digital media marketing on various Platform

Mapping of CO and PO

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	0	1	1	2	1	2	1	2	2	3
CO2	2	2	2	2	2	2	1	2	1	2	3	3
CO3	2	0	1	2	1	2	0	2	2	2	3	1
CO4	2	1	1	2	2	2	2	2	2	2	3	2

Learning Outcome:

After completing this course, students should be able to:

- Online Promotion of Business
- Can Manage CRM(Customer Relationship Management) across all digital channels, can create digital marketing plan
- Can learn SWOT analysis
- Can create YouTube channel, create blog etc.

Theory syllabus

Unit	Content	Hrs
1	**Introduction to Digital Media Marketing** Overview of Digital Media Marketing, Difference and ROI between Digital and Traditional Marketing, Ecommerce, Importance of Digital Media Marketing, ways to generate digital media marketing, categories of digital media marketing	9
2	**Introduction to Search Engine Optimization and Social Media Optimization** Basics of search marketing: organic & paid search results , What is SEO, On page and Off Page Optimization,Keywords and Planners, Algorithms, What is SMO, Facebook Marketing, Wordpress Blog Creation,Twitter Marketing, Linkdin Marketing, Google Plus marketing, Social media Analytical Tools	11
3	**Email Marketing Best Practices:** Overview of E-mail marketing, Promotional Emails, Relational Emails, Newsletters/Blog Articles, Email Tools, Mail Chimp, Mail Scheduling, Automation of Mail	13
4	**Search Engine Marketing:** Google Ad Words, Ad Sense, Ads Video, Foundation of YouTube Channel, M-commerce, E-commerce	12

Practical content

List of programs on the above mentioned topics as per decided by subject faculty

Text Books	
1	Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation
2	Digital marketing all-in-one for dummies
Reference Books	
1	The Ultimate Guide of Digital Marketing by Digital Marketer
2	Digital Marketing: Strategy, Implementation and practice
MOOC/Certification Courses	
1	**Google Digital Unlocked**
2	**https://skillshop.exceedlms.com/**
Question Paper Scheme:	
	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 from all possible section. Q-2 (Must be from topics: UNIT-1(07marks)) Q-3 (Must be from topics: UNIT-2(07marks)) Q-4 (Must be from topics: UNIT-3(08marks)) Q-5 (Must be from topics: UNIT-4(08marks))

Note:

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GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATION

Programme	Master of Computer Science (Information Technology)		Branch/Spec.	----	
Semester	II		Version	1.0.0.0	
Effective from Academic Year		2020-21	Effective for the batch Admitted in		JUN-2020
Subject code	P42A4EC		Subject Name	(Elective-III) Ecommerce Technology	

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 understand the concept of framework

To get the idea of E-Commerce Website.

To Provide Practical approach of E Commerce Website using Case Study - myShop.

Pre-requisites:

Basic knowledge of websites Designing and CMS.

Learning Outcome:

Students can utilize the knowledge of CMS for fast designing of web page and also able to make E Commerce website as per the requirement of client.

Course Outcome:

COs	Description
CO1	Able to understand the CMS and installation of WordPress.
CO2	Learn How the WordPress Works with page, post, Menu etc.

CO3	Understand the WooCommerce Plugins for design rich Ecommerce Websites.
CO4	Learn how the use Payment, Shipping, Orders and customer query in Ecommerce website.

Mapping of PO CO

Cos/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	1	3	2	2	2	1	0	3	2	2
CO2	3	3	0	3	3	3	2	2	0	3	3	3
CO3	3	3	3	3	3	3	3	2	1	3	3	3
CO4	2	3	3	3	3	3	3	3	2	3	3	3

Theory syllabus

Unit	Content	Hrs
1	**Introduction to WordPress, Initial Setup** Overview, CMS Features, WordPress Features, Difference between Wordpress.org and WordPress.com, Install Wordpress, Overview of Dashboard	08
2	**WordPress Blog Aspects** Post : Add Post, Delete Post, Page : Add Page, Delete Page, Menu , Widgets , Google Analytics Plugins, Overview Themes	10
3	**Introduction to WooCommerce** Why Use WooCommerce for Your WordPress OnlineShop? WooCommerce - Installation and Setup, Home Page Setup, Create Products with WooCommerce, Product type, Overview of Elementor, Introduction to Add-to Cart, Set Up a WooCommerce Shop Page, Setting Up Important WooCommerce Pages, Build an E-commerce Popup With Elementor, WooCommerce Management Options and Settings	15
4	**Payment and Shipping Management** Payment: Overview, Payment Options, Coupon Management, Taxes, Product Shipping: Overview, options, Classes, Zones, Managing Orders: Overview, Email, FAQ, Refund, Reports of WooCommerce Case Study: Create Website – myShop using WooCommerce Features	12

Practical content

	List of programs specify by subject teacher based on above mention topics.
Text Books	
1	Building Your Online Store With WordPress and WooCommerce, Author: Lisa Sims , publication by Apress
Reference Books	
1	WordPress: Visual Quickstart Guide (2nd Edition) by Matt Beck, Jessica Neuman Beck PeachpitPress publications
2	Web Reference :https://wordpress.org/
3	Web Reference : https://docs.woocommerce.com/documentation/plugins/woocommerce/getting-started/
MOOC/Certification Courses	
1	https://www.udemy.com/course/how-to-build-an-ecommerce-store-with-wordpress-woocommerce/
2	https://www.udemy.com/course/the-complete-wordpress-website-business-course/
3	https://www.udemy.com/course/wordpress-for-beginners-course/
Note for Examiner	
	Q-1Must 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: UNIT-1 (6 marks))
	Q-3 (Must be from topics: UNIT-2 (7 marks))
	Q-4 (Must be from topics: UNIT-3 (8 marks))
	Q-5 (Must be from topics: UNIT-4(9 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)

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CE= Continuous Evaluation, SEE= Semester End Examination

GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATON

Programme	Master of Computer Science (Information Technology)	Branch/Spec.	---	
Semester	II	Version	1.0.0.0	
Effective from Academic Year	2020-21	Effective for the batch Admitted in		JUN-2020
Subject code	P42A4AAD	Subject Name	(Elective-III) Android Application Development	

Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	2	-	05	Theory	40	60	100
Hours	3	-	4	-	07	Practical	20	30	50

Objective:

To Compare regular web applications with mobile applications. It include the basics of android, android app development. The main aim is to learn and understand the mobile app development using android.

Pre-requisites:

Basic knowledge of the Core Java Programming, Database Concepts.

Course Outcome:

Cos	Description
CO1	Able to understand basics of android and its development environment.
CO2	Learn android UI design essentials for design and development android application.
CO3	Understand the layout of android.
CO4	Enhance the Crud operations in android and Develop Utilities of android like telephony, web api and other

Mapping of CO and PO:

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	1	2	2	2	0	2	2	0	1	0	1
CO2	3	1	2	2	2	0	2	3	0	1	2	1
CO3	3	2	3	1	3	1	2	3	1	1	0	1
CO4	1	2	3	1	3	2	2	3	1	1	2	1

Theory syllabus

Unit	Content	Hrs
1	**An Overview of Android** IntroducingAndroid:HistoryofAndroid(2),OpenHandsetAlliance,AndroidArchitecture,SettingUpYourAndroidDevelopmentEnvironment, Features of Android, SDK Tools, Components of Android Application , Activity Lifecycle, Android Manifest File, Working with permissions and resource (4).	06
2	**Android User Interface Design Essentials** ExploringUserInterfaceScreenElements:IntroducingAndroidViewsandBasic Layouts(3),DisplayingTextwithTextView,RetrievingDataFromUsers,UsingButtons,CheckBoxesandRadioGroups, ImageView, Working with Spinner (3),GettingDatesandTimesFromUsers,UsingIndicatorstoDisplayDatatoUsers (2),AdjustingProgresswithSeekBar (2),Working with RatingBar, ProvidingUserswithOptionsandContextMenus,HandlingUserEvents,WorkingwithDialogs ,WorkingwithStyles,WorkingwithThemes(6).	16
3	**Advance Layout of Android** Layouts (List view, Grid Layout, Card Layout, Drawer Layout) (6) Types of Adapter. (Array, Base and custom) (4), Use of Fragments (3), Floating Button (2).	15
4	**Using Common Android APIs** AndroidDataandStorageAPIs:WorkingwithFilesandDirectories,StoringStructuredDataUsingSQLiteDatabases (5),AndroidTelephonyAPIs:WorkingwithTelephonyUtilities,UsingSMS,MakingandReceivingPhoneCalls (3)	08

Practical content

List of programs on the above mentioned topics as per decided by subject faculty

Text Books	
1	Lauren Darcey and Shane Conder, "Android Wireless Application Development", Pearson Education
2	http://developer.android.com/
Reference Books	
1	Reto Meier, "Professional Android 2 Application Development", Wiley India Pvt Ltd (2011)
2	Teach.Yourself.Android.Application.Development.in.24.Hours.2nd.Edition.
MOOC/Certification Courses	
1	https://www.udemy.com/course/a-beginners-guide-to-android-app-development/
2	https://www.linkedin.com/learning/paths/become-an-android-mobile-app-developer
3	
Question Paper Scheme:	
	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: Unit 1 (10 marks)) Q-3 (Must be from topics: Unit 2 (6marks)) Q-4 (Must be from topics: Unit 3 (6 marks)) Q-5 (Must be from topics: Unit 4 (8 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 APPLICATON

Programme	Master of Computer Science (Information Technology)		Branch/Spec.	---	
Semester	II		Version	1.0.0.0	
Effective from Academic Year		2020-21	Effective for the batch Admitted in		JUN-2020
Subject code	P42A4IAD	Subject Name	(Elective-III) IPhone Application Development		

Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	-	2	-	05	Theory	40	60	100
Hours	3	-	4	-	07	Practical	20	30	50

Objective:

To Compare regular web applications with mobile applications. It also explain how Iphone is differ from android. It include the basics of Iphone, Iphone app development. The main aim is to learn and understand the mobile app development using Iphone.

Pre-requisites:

Student must have knowledge of Programing language like C,VB, C# and concepts of OOPS.

Course Outcomes

Cos	Description
CO1	Able to understand the basic concepts of Swift Programming.
CO2	Able to understand the basic concepts OOP concepts in Swift.
CO3	Able to grasp iOS framework and its components.
CO4	Able to understand and implement the core concept of UI controls in iOS.
CO5	Ability to design and implement basic level of Mobile Application in iOS.

Mapping of CO and PO:

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	1	1	2	0	0	1	0	1	1	0
CO2	2	3	1	1	2	0	0	1	0	1	1	0
CO3	3	2	2	3	3	0	0	1	0	1	2	0
CO4	3	2	2	3	3	0	0	2	0	2	1	0
CO5	3	2	3	2	3	0	0	1	0	1	1	0

Theory syllabus

Unit	Content	Hrs
1	**iOS Fundamentals& Swift Basics** 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, Swift Basics [Variable, Operators, Switch Statements, Decision Making Statements, Looping Statements, Dictionary, Tuple]	12
2	**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	08
3	**Understanding Extensions, Error Handling, ARC** Optional chaining, Type casting, Error handling, Extensions, Protocols, Access Control, ARC [Automatic reference connecting] Understand iOS memory management **Introduction to UIKit Framework** Application Component, Design Pattern –MVC,MVP,MVVM,Delegate Pattern ,App Delegate , iOS App life cycle, Connecting View and Controller, Size class, Stack view, Interface Development	06
4	**Working with UIControls** Creating IBoutlet, IBaction, UIAlert Controller(alert and actionsheet),UIButton, UILabel, TextField, Switch, Activity Indicator View, ProgressView, UIImageView, Datepicker, Auto layout with size class(Constrant), Navigation from one View to another View, Navigation Using Segue, Push and POP Methodology,Text Sharing	12

5	**Introduction to Prototyping**	07
	Creating a Simple Table-based App, Working with Static Table Views,	
	Customize Table Views Using Prototype Cell,	
	Interacting with Table View, edition of row,	
	Table Row Deletion, Swipe for Action, Activity Controller and MVC, Web View	

Practical content
List of programs on the above mentioned topics as per decided by subject faculty

Text Books	
1	Beginning IOS Programing with Swift –by AppCoda

Reference Books	
1	Beginning Swift Programming (WROX) by Wei-Meng Lee
2	The Swift Developer's Cookbook by Packt Publishing Limited
3	https://www.appcoda.com/learnswift/

MOOC/Certification Courses	
1	https://www.udemy.com/course/make-me-an-iphone-app-developer-beginner-series/

Question Paper Scheme:
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: Unit 1 & 2(10 marks))
Q-3 (Must be from topics: Unit 3 (6marks))
Q-4 (Must be from topics: Unit 4 (6 marks))

(UIActivity View Controls)

,Set App Icon,SplashScreen

	Q-5 (Must be from topics: Unit 5 (8 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 APPLICATIONS

Programme	Master of Computer Science (Information Technology)	Branch/Spec.	Computer Applications
Semester	II	Version	1.0.0.0
Effective from Academic Year	2020-21	Effective for the batch Admitted in	June 2020
Subject Code	P42A4CS1	Subject Name	(Elective-III) Cyber Security-I

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 emphasize the fundamental and importance of digital forensic and incident response. The students will learn different techniques and procedure that enable them to conduct a digital investigation systematically.This course majorly focuses on network and host based digital evidence collection.

Pre-requisites:

Fundamental knowledge of cyber security , cyber-attacks and cyber law

Course Outcome:

Name of CO	Description
CO1	To learn and understand about the fundamentals of incident response process and Cyber Security.
CO2	Knowing about the digital forensic, the role of digital forensic and its process.
CO3	Examine and collect several sources of network based and host-based evidence in the event of incident.
CO4	To learn and analyze for prepare to document and report digital evidence whenever required.

	Mapping of CO and PO											
Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	2	1	2	2	3	2	2	0	2	2	2
CO2	2	3	2	3	2	3	2	3	0	2	2	1
CO3	2	3	2	3	3	2	2	2	0	3	2	3
CO4	2	3	2	3	3	3	2	3	0	2	3	3

Content:		
Unit		**Hrs**
1	**Incident Response:** Incident response process, the role of digital forensic, incident response process, incident response framework, incident response plan, incident classification, incidentresponse playbook, escalation procedure, maintaining the incident responsecapability, Cyber Security Vs. Cyber Forensic	12
2	**Forensic Fundamentals:** Introduction, Laws and regulations, rules of evidence, digital forensic fundamentals,digital forensic process, Digital forensic lab, Physical security, Tools, Hardware,Software, Jump kit	10
3	**Network Evidence Collection:** Classification of Network Forensic Systems, Challenges in Network ForensicAnalysis, Network Forensic Process Models, configuration: Logs and logmanagement, network device evidence, Security information and event managementsystem, Security onion, packet Capture, tcpdump, winpcap and rawcap, wireshark,Evidence collection	12
4	**Acquiring Host-Based Evidence Collection:** Preparation, Evidence volatility, Evidence acquisition, Evidence collectionprocedures, Memory acquisition, Non-volatile data,	11

Practical Content:

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

Text Books:

1	Digital Forensics and Incident Response - An intelligent way to respond to attacks 1 st edition byGerard Johansen Published by Packt Publishing Ltd.

Reference Books:

1.	Real Digital Forensics 1stedition by Keith J. Jones, Richard Bejtiich, Curtis W. Rose, Published by Addison Wesley Pearson Education
2.	Computer Evidence Collection & Presentation 1stedition by Christopher L.T. Brown Published by Firewall Media
3.	Digital Forensic with Open Source Tools, 1stEdition by Cory Altheide, Harlan Carvery by syngress

Question Paper Scheme:

  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
  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 Unit: 1 (10 marks))
  Q-3 (Must be from Unit: 2 (5 marks))
 Q-4 (Must be from Unit: 3(10 marks))
  Q-5 (Must be from Unit: 4 (5 marks))