GANPAT UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY

Programme	Bachelor of Technology			Branch/Spec.	Computer Engineering / Information Technology	
Semester	V			Version	2.0.0.0	
Effective from Academic Year		2020-21		Effective for the batch Admitted in		July 2018
Subject code	2CEIT5PE8	Subject Name		Advanced Programming with .NET		

Teaching scheme					Examination scheme (Marks)			
(Per week)	Lecture (DT)		Practical (Lab.)	Total		CE	SEE	Total
	L	T U	P	TW				
Credit	3	0	1	-	4	Theory	40	60	100
Hours	3	0	2	-	5	Practical	30	20	50

Pre-requisites:

Students should know about Javascript, HTML, Basics of Dot net framework, Basics of ASP.NET, Visual Studio, Object oriented programming

Objectives of the course:

1. This course helps to build and practice programming skills
2. The course also focuses on delivering knowledge and hands-on experience about building web applications using the MVC model of ASP.NET
3. This course cumulatively gives great exposure to the learners about Razor views & signalR, AJAX, JQuery, Web services in detail
4. Develop and publish Desktop applications
5. Able to work on Azure cloud
6. Learn about the basic concepts of Avalonia Framework, Xamarin

Theory syllabus

Unit	Content	Hrs
1	**Introduction of .NET Core:** Understanding .NET Core, .NET Core Features, .NET Core Framework Architecture, .NET Core 3.0 vs .NET 4.5 Framework, .NET Core Supports, Advantages of .NET Core, .NET App Model, .NET CLI	03
2	**ASP.NET Core:** ASP .NET Core Project structure, Configuration, Creating & Injecting Service, MVC: MVC Architecture, MVC Middleware, Model, View, Controller, Action Methods, ASP.NET MVC Framework, Life Cycle of ASP.MVC Request, MVC State Management, Simple MVC based Web Application, Integration with Modern UI Frameworks, MVC Validation, Data Annotations, Security, Routing in MVC, Web API, CRUD using Web API, Authentication and Authorization: Role Based Authorization, JWT Token	12
3	**Razor Views & SignalR:** Razor View Engine, Types of Views, Razor Syntax Fundamentals, Razor Statements, Loops, Enum Support, Layout view Razor (Master Pages), Working with Sections, Working with Partial Views, SignalR with chat application	05
4	**Entity Framework Core:** Object Relational Mapping (ORM), Entity Framework, Database Modeling, CRUD Operations, Database Migration, Repository Design Pattern, Unit of Work Design Pattern, Dependency Injection	05
5	**AJAX & JQuery :**	03

	ASP.NET Ajax Introduction, Architecture , Using AJAX.NET Controls ,Accordion, Calendar ,Cascading Dropdown, Collapsible Panel , Filtered Textbox ,NumericUpDown, Modal Popup , Popup Control , ASP.NET Ajax Server Controls , ASP.NET Ajax Server Data, ASP.NET Ajax Client-side Library, ASP.NET Ajax Control Toolkit	
6	**Web Services:** The Motivation for XML Web Services, Creating an XML Web Service, Designing XML Web Services, Web Service Consumers, Discovering Web Services Using UDDI, Web Service using RESTful, Web Service SOAP, Developing Secure WebService	05
7	**Dot Net Core Desktop Application:** Application Architecture, Application Life Cycle, Navigation, Designing XAML UI, MVVM architecture, Data Binding, Entity Framework	05
8	**Introduction to Azure Cloud:** Cloud, WebAPI using Azure Cloud, Azure services, Microsoft Azure Storage, Azure Virtual Network, Azure Virtual Machines	04
9	**Advanced Topics:** Avalonia Framework, Xamarin	03

Practical content

Experiments/Practicals/Simulations would be carried out based on syllabus

Text Books

1	Pro ASP.NET MVC 5 (Expert's Voice in ASP.Net), by Adam Freeman
2	C# 8.0 and .NET Core 3.0 – Modern Cross-Platform Development: Build applications with C#, .NET Core, Entity Framework Core, ASP.NET Core, and ML.NET using Visual Studio Code, by Mark J. Price

Reference Books

1	Learn ASP.NET Core 3: Develop modern web applications with ASP.NET Core 3, Visual Studio 2019, and Azure, by Kenneth Yamikani Fukizi, Jason De Oliveira, Michel Bruchet
2	Pro Entity Framework Core 2 for ASP.NET Core MVC by Adam Freeman
3	Pro ASP.NET Web API: HTTP Web Services in ASP.NET (Expert's Voice in .NET) by Tugberk Ugurlu, Alexander Zeitler, Ali Kheyrollahi
4	Xamarin Mobile Application Development: Cross-Platform C# and Xamarin.Forms Fundamentals, by Dan Hermes
5	Azure for Architects: Implementing cloud design, DevOps, IoT, and serverless solutions on your public cloud 1st Edition, by Ritesh Modi
6	Real-Time Web Application Development: With ASP.NET Core, SignalR, Docker, and Azure, by Rami Vemula
7	Mastering Visual Studio 2019, Kunal Chowdhury
8	Learn WPF MVVM: XAML, C# and the MVVM pattern, by Arnaud Weil
9	Ryan Benedetti and Ronan Cranley, Head First jQuery, O'Reilly Media

ICT/MOOCs Reference

1	https://www.edx.org/course/mvc-application-design-using-net-core-20
2	https://www.udemy.com/course/complete-aspnet-core-31-and-entity-framework-development/
3	https://www.dotnettricks.com/training/masters-program/aspnet-core
4	https://avaloniaui.net/docs/

Course Outcomes:

After successful completion of this course, student will be able to:
1. Understand architecture of .NET Core, MVC web based Application.
2. Implement real time applications using signalR.
3. Use advanced concepts related to Web Services and desktop application in project development.
4. Build interactive web based UI using AJAX & jQuery.
5. Build interactive UI for desktop application.