

# Back-End .NET

**Diploma Content**

**170**  
Hours

**6**  
Months



# Why steps

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**Instructors** +10 years of experience

**Mentors** follow up with you

**+1000** satisfied students

**Practical** projects

**Free** lecture

**Business** sessions

**Freelancing** sessions

**Installment** 0% interest

Steps learning is  
**ISO 9001:2015**  
certified



## 1-Introduction to programming using C#

- Intro of Programming
- Execution Life Cycle
- Binary System
- Create Console App
- Explain Project Component
- Datatypes
- Variables
- Type Casting
- Adv . Arithmantic Operation
- Null Coalescing Operator
- Condition Statment
- Looping Statment
- Array
- Method

**15**  
**Hours**

# Diploma content

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## 2-SQL Server Programming

- Intro. to DB Systems
- DB Life Cycle
- DB Vs. File based
- ERD Design
- PK and FK
- Mapping rules
- T-SQL Categories
- Using Management Studio
- Create DB
- DDL Statements
- DML Statements
- Batch
- Alter, Drop
- Truncate
- Like , distinct
- Aggregate Fun, Grouping
- Union
- Sub-Queries
- Types of join
- Exists
- Normalization

**15**  
**Hours**

## 3-Advanced SQL Server

- What is MS SQL Server?
- Client \ Server Architecture
- Why SQL Server
- SQL Server Editions
- SQL Server Components and Tools
- Attach and detach
- Take offline & bring online
- System and user databases
- Create DB using code & wizard
- Create tables using code & wizard
- Data Integrity and constraints
- Schema and Synonyms
- Data types and UDD

- Views
- Variables
- Control of flow
- Built-in functions
- User defined functions
- Stored Procedures
- Triggers
- Indexes.
- Sequence.
- Computed Columns.
- Error Handling.
- Transactions.
- Pivoting
- Snapshots.
- Backups.
- Permissions.
- Users & logins.

**15**  
**Hours**



# Diploma content

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## 4-OOP Using C#

- OOP Concepts
- Abstraction – Encapsulation
- Create Class – access Modifiers
- Member field , function
- Create instance
- this
- Setter – getter "Member Method"
- Constructor
- Constructor Chaining
- Properties
- Demo on array of Object
- Revision
- auto implement property
- read –only property
- init-only
- primary constructor
- Ref Type & Value Type
- Indexed
- Class Relations
- Inheritance
- Abstraction
- Polymorphism
- Override –overload – new
- as –is
- Abstarct class

**15**  
**Hours**

# Diploma content

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## 5-Advanced C#

- Boxing and unBoxing
- Object Class
- Operator Overload
- Enum
- Ctrust
- Interface
- Generics
- Delegates
- Thread
- Extension Method

**30**  
**Hours**

# Diploma content

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## 6- Linq

- Basic LINQ Query Operations
- Filtering Data with LINQ
- Sorting Data with LINQ
- Aggregation and Grouping in LINQ
- Joining Data with LINQ
- LINQ to Objects
- Deferred Execution in LINQ
- Understanding and Using Anonymous Types
- Lambda Expressions in LINQ

**5**  
**Hours**



## 7- Entity Framework Core

- Introduction to Entity Framework Core
- Setting Up Entity Framework Core
- DbContext and Models
- Understanding and Using DbSet
- Configuring Entity Relationships
- Entity Framework Core Migrations
- Querying Data with LINQ
- CRUD Operations in Entity Framework Core

**10**  
**Hours**

# Diploma content

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## 8- MVC

- Introduction to mvc, how it work
- Routing
- Route attribute
- Model – View – Controller
- Razor View
- Pass Data To View
- ViewData
- ViewBag
- Model
- ViewModel
- Middleware in ASP.NET Core MVC
- Model Using Entity Framework Core
- Pass Data From Action To Action (Request to Another)
- Session Object
- TempData( peak -Keep)
- Cookies
- Model Binding (from Action View and view to action)
- HTML Helpers (Strong Helper – Loosely Type Helper)
- Tag Helpers
- Layout (@RenderBody – @RenderSection – Layout property)
- Validation
- Using Dependancy injection
- Using SignalR
- Security using identity
- Deployment

**25**  
**Hours**

# Diploma content

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## 9– Web API Core

- Introduction to ASP.NET Core Web API
- Setting Up the Development Environment
- Creating Your First Web API Project
- Understanding RESTful Services
- Controllers and Actions in Web API
- Routing in ASP.NET Core Web API
- Model Binding and Validation
- Dependency Injection in Web API
- Working with JSON Data Format
- CRUD Operations in Web API
- Authentication and Authorization in Web API using JWT Token
- Middleware in ASP.NET Core Web API
- Exception Handling in Web API
- Consuming Web API (HTTP Clients)
- CORS (Cross-Origin Resource Sharing) in Web API
- Testing and Debugging Web API
- Deploying ASP.NET Core Web API

**12**  
**Hours**

# Diploma content

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## 10– Projects

**15**  
**Hours**

## 11– Business

**6**  
**Hours**

## 12– Freelancing

**6**  
**Hours**



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