



**ICT  
ACADEMY  
OF KERALA**



**INDUSTRY READINESS PROGRAM**  
**CERTIFIED SPECIALIST IN**  
**FULL STACK DEVELOPMENT**  
**(.NET)**



**REGISTER  
NOW!**

<https://ictkerala.org/registration>





## About the program

Full Stack Development within the .NET framework encompasses the integration of front-end and back-end components in web development, leveraging Microsoft's comprehensive .NET technology stack. On the front-end side, proficiency in ASP.NET MVC (Model-View-Controller) is essential, enabling the creation of scalable and maintainable web applications. Additionally, a solid understanding of HTML, CSS, and JavaScript is crucial for crafting engaging user interfaces. Familiarity with front-end libraries and frameworks, such as Bootstrap, further enhances the aesthetic and functional aspects of web design.



**OFFLINE**  
**3 Months**  
(375 Hrs.)



**INTERNSHIP DURATION**  
**125 Hrs.**  
(With Mentor Support)



**ONLINE**  
**6 Months**  
(375 Hrs.)

- ✔ **Online and Offline sessions tailored for graduates and professionals**
- ✔ **Scholarships and cashbacks for meritorious candidates via ICTAK**
- ✔ **Three to six-month access to LinkedIn Learning included**
- ✔ **Comprehensive employability skills training offered**
- ✔ **100% placement assistance guarantee for the eligible candidates**



The ICT Academy of Kerala (ICTAK) offers hands-on training sessions aimed at bridging the skill gap in the information and communication technology (ICT) domain. These online or offline sessions provide job-oriented courses in information technology (IT), furnishing participants with the essential skills and certifications required for various IT job roles. This proactive approach has proven instrumental in assisting numerous individuals in securing employment within the ICT sector.

## Job Roles

Candidates participating in this program can anticipate a wide range of potential career paths upon completion.

Full Stack Java Developer

~4 L

Full Stack Engineer

~7 L

Software Engineer

~5 L

Senior Full Stack Developer

~8 L

## Learning Outcome

Upon completion of the program, participants will be equipped with:

- **Master .NET Framework:** Understand the architecture and components of the .NET framework, and effectively use Visual Studio for development.
- **Develop Web Applications:** Build dynamic web applications using ASP.NET MVC and ASP.NET Core, and create RESTful services with ASP.NET Web API.
- **Manage Data Efficiently:** Perform database operations using Entity Framework and LINQ, and manage data access with ADO.NET.
- **Implement Security and Error Handling:** Apply security features such as authentication and encryption, and implement robust error and exception handling.
- **Deploy and Optimize Applications:** Deploy .NET applications to various environments, including cloud platforms like Azure, and optimize for performance and scalability.

## Agenda

- Foundation Module
- HTML5/CSS3
- Bootstrap
- JavaScript
- Introduction to .NET Core
- Introduction to C#
- Object Oriented programming using C#
- Introduction to SQL – DBMS, SQL QUERIES & JOINS
- ADO.NET
- Microservices/MVC
- Entity Framework
- ASP.NET
- Frontend Technologies





## About ICTAK



The ICT Academy of Kerala (ICTAK) is a not-for-profit organization formed by the Government of India, the Government of Kerala, and leading IT industry players like TCS, UST, IBS, and Quest Global. ICTAK offers various ICT and life skills programs such as Microsoft, Java, DevOps, Cyber Security, Artificial Intelligence/Machine Learning, and so on. Recognized by the Government of Kerala's Department of Electronics & IT, ICTAK provides comprehensive training with capstone projects and internships to prepare the next generation of ICT professionals. In the 2023-24 period, it expanded its partner network to 282 academic institutions, impacting over 12,000 students and 600 faculties. With 182 corporate partners, ICTAK organizes events, hackathons, and conferences to develop new ICT courses and promote digital literacy. Through partnerships with the government, it focuses on capacity building and project execution. Over the last decade, ICTAK has trained 1,20,000 participants and received national recognition for its innovative training practices from the Indian Society for Training & Development (ISTD).



**INFORMATION &  
COMMUNICATION TECHNOLOGY  
ACADEMY OF KERALA**  
**ICTAK**

**CERTIFIED SPECIALIST IN  
FULL STACK DEVELOPMENT (.NET)**

## Eligibility

- Engineering or science graduates / three-year diploma in any engineering branches, having a foundation level knowledge (plus two equivalent) in Mathematics and Computer fundamental skills.
- Students who have completed their graduation but are awaiting the final results can also apply.

*\*Please note that the ICT Academy of Kerala will have the right to cancel the candidature at any point if found ineligible.*



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## Appendix: Detailed Program Curriculum

Module	Duration
<b>Module 1: Problem Solving and Design Thinking</b> <ul style="list-style-type: none"><li>Understanding the Problem, Analytical Thinking, Creativity and Innovation, Decision-Making Skills, Troubleshooting Skills, Logical Reasoning</li><li>Design Thinking: Empathy, Defining the Problem, Ideation, Prototyping, Testing and Iterating, Case Studies.</li></ul>	<b>10 Hrs.</b>
<b>Module 2: General Concepts, Coding Standards &amp; Introduction to .NET Framework ,Introduction to C#</b> <b>Unit 1</b> <ul style="list-style-type: none"><li>Basics of Programming, Types of Applications in Programming,.NET Framework Overview, CLR, CLS, MSIL, Assemblies, Namespaces, .NET Languages. Visual Studio and Visual Studio Code Installation, Basic Structure of .NET Programming and its Architecture.</li></ul> <b>Unit 2</b> <ul style="list-style-type: none"><li>Using Variables and Arrays, Methods and Parameters, Handling Errors and Exceptions, Working with Collections, Dictionary, List, Generics, Parallel for Each, Async Await, Reading and Writing Text Files.</li></ul>	<b>45 Hrs.</b>
<b>Module 3: Object Oriented Programming Using C#</b> <ul style="list-style-type: none"><li>Object Oriented Thinking, Objects, Classes, Abstraction, Encapsulation, Inheritance, Polymorphism, Defining Requirements, Use Cases, Identifying the Actors, Identifying the Scenarios, Drawing Use-case, User Stories, Design and Solution, Identify Objects, Identify Class Relationships, Identify Class Responsibilities, Class Diagram: Attributes, Class Diagram: Behaviors, Class Diagram to Code, Instantiating Class and Constructor, Multiple Constructors, Static Attributes and Methods, Identifying Inheritance.</li></ul>	<b>40 Hrs.</b>
<b>Module 4: SQL Topics – DBMS, SQL Queries &amp; JOINS</b> <ul style="list-style-type: none"><li>Basics of SQL, Data Types, Expressions, Operators, Working With Queries &amp; Clauses, Creating Databases, Creating Tables, Stored Procedures, Working with Indexes &amp; Views, Creation of Table, Modifying the Structure of a Table, Dropping a Table, Inserting, Updating &amp; Deleting Operations • Introduction to Join, Inner Join, Left/Right Join, Cross Joins, Unions, Stored Procedures, User Defined Functions, Triggers, Temp Table and Table Variables, CTE, Best Practices in SQL Queries.</li></ul>	<b>45 Hrs.</b>
<b>Module 5 - Windows Form Development Using C#</b> <ul style="list-style-type: none"><li>Introduction on various widgets using Toolbox, UserInterface Design using tool boxes, Hyperlinking between forms, Basic connections between widgets, Mysql CRUD operations to connect with the database using windows forms. Encryption / Decryption/ Hashing,Creating and Establish Database Connectivity, CRUD Operations Using Connection Oriented Model with SQL, Command and SQL Data Reader, Data Table and Data Set.</li></ul>	<b>45 Hrs.</b>



Module	Duration
<b>Module 6- Front End Application Design</b> <ul style="list-style-type: none"><li>Introduction to HTML5,Familiarization with HTML Tags,Introduction to CSS3,Familiarization with CSS3 Properties, Introduction to Bootstrap, Basics of Bootstrap Grid, Javascript Basics Walkthrough, ECMAScript ES6; Arrays and Array Operations; Template literals,Arrow Functions;Classes;Array Destructuring and Spread Operator,ES6 Modules and export and Import; Asynchronous Programming, React Introduction and Setup, React Hooks, Router,Axios HTTP Library, utilities and libraries.</li></ul>	<b>45 Hrs.</b>
<b>Module 7: ADO.NET, Entity Framework &amp; ASP.NET</b> <ul style="list-style-type: none"><li>Creating and Establish Database Connectivity, CRUD Operations Using Connection Oriented Model with SQL, Command and SQL Data Reader, Data Table and Data Set. LINQ Queries, Performing CRUD Operations Using Entity Framework. Web API, Attribute Routing in Web API, State Management.</li></ul>	<b>45 Hrs.</b>
<b>REST API</b> <ul style="list-style-type: none"><li>Web API, Attribute Routing in Web API, State Management,RestApi and other API types using json and CSV, JWT(JSON Web Token) Method.</li></ul>	
<b>Deployment</b> <ul style="list-style-type: none"><li>Memory Optimization, Dockerization and Concepts in Cloud and Executables Pipeline Hosting in Cloud.</li></ul>	
<b>Module 8 - Capstone Project</b> <ul style="list-style-type: none"><li>Applying knowledge and Skills Acquired Throughout the Program to Create a Web Application Using .NET</li><li>Project Planning, Data Collection, Data Preparation, Model Development, Model Evaluation, Model Deployment, Analysis and Presentation</li></ul>	<b>100 Hrs.</b>
<b>Total</b>	<b>375 Hrs.</b>