



**ICT  
ACADEMY  
OF KERALA**



**INDUSTRY READINESS PROGRAM**

# **CERTIFIED SPECIALIST IN FULL STACK DEVELOPMENT (MERN)**



**REGISTER  
NOW!**

<https://ictkerala.org/registration>





## About the Program

MERN Stack Development is a top choice for web developers aiming to create high-quality web applications using JavaScript. The Digital Engineer in MERN Stack training program offers certification to qualify for industry-grade jobs. Developers favour the MERN stack for its flexibility and open-source nature.



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



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



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

- ✓ **Physical sessions tailored for graduates and professionals**
- ✓ **Scholarships and cashbacks for meritorious candidates**
- ✓ **Comprehensive employability skills training offered**
- ✓ **3-months FREE LinkedIn Learning access**
- ✓ **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 MERN Developer ~5 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:

- **Comprehensive Full Stack Development knowledge:** Solid foundation in full stack concepts, including ReactJs, cloud computing, and Node/Express technologies.
- **Practical Skills:** Proficiency in HTML, CSS, Javascript, ReactJs, Node/Express and MongoDB.
- **Career Readiness:** Preparedness to enter the Full Stack field with a competitive edge, capable of handling real-world challenges and contributing to various domains using web development techniques.

## Agenda

- Introduction to MERN Stack
- Learn HTML5 & CSS3 Fundamentals
- JavaScript Foundation
- JavaScript Advanced
- Learning npm - Node Package Manager
- Node.js Essentials
- Express Essentials
- Building a Website with Node.js and Express.js
- Learning MongoDB
- React.js Essentials
- Full-Stack JavaScript Development with MongoDB, Node and React
- MERN Application Deployment





## 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 (MERN)

### 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.*



G1, GROUND FLOOR, THEJASWINI BUILDING  
TECHNOPARK CAMPUS, THIRUVANANTHAPURAM  
+91 75 940 51437 | 471 270 0811  
[info@ictkerala.org](mailto:info@ictkerala.org) | <https://ictkerala.org>

## 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 - Introduction to HTML, CSS and Bootstrap</b> <b>Unit 1</b> <ul style="list-style-type: none"><li>Introduction to HTML, What is HTML, Advantages of HTML5, Understanding Basic Structure for HTML, HTML Elements and Attributes, Head Section and Meta Tags, Understanding Basic HTML Tags, HTML5 Semantics, Block and Inline Elements, HTML Classes, HTML Id, HTML Forms, Input Types, Input Attributes, Styles, Comments, Links, Images, Aside, Article.</li></ul> <b>Unit 2</b> <ul style="list-style-type: none"><li>Introduction to CSS, What is CSS, Basic Syntax of CSS, Colors, Backgrounds, Borders, Margin, Padding, Height/Width, CSS Box Model, Responsive Design, Media queries, Flexbox concepts, Responsive Table and Sass, Float, Display, Text, Fonts, Align Bootstrapping, Bootstrap Grid and Bootstrap Classes.</li></ul>	<b>45 Hrs.</b>
<b>Module 3 - JavaScript</b> <b>Unit 1</b> <ul style="list-style-type: none"><li>Introduction, How Javascript Works, Javascript, Console, Javascript Syntax. Basic Syntax Primitive Data, Variables, Constants &amp; Assignment, Arithmetic Operators &amp; BODMAS, Assignment Operator, Code Editors &amp; Debugging, Functions or Subroutines, Arrays, JavaScript – Events, Handling Web Page Events, JavaScript DOM.</li></ul> <b>Unit 2</b> <ul style="list-style-type: none"><li>Object Oriented Concepts-Class, Constructor, Exceptions, Introduction to Ajax, Github Version Control and Github Storage.</li></ul> <b>Unit 3</b> <ul style="list-style-type: none"><li>What is ECMAScript 5?, "Use Strict" Directive, String operations, Array Operations, JSON, JSON.Parse(), JSON.Stringify(), What is ECMA-Script 6?, JavaScript let, JavaScript const, Arrow Functions in JavaScript, Introduction:Callbacks, Promises, Async/Await Functions in JavaScript, Defining and Using ES6 Modules. ES6 - Error Handling, Throwing Exceptions, Custom Errors.</li></ul>	<b>45 Hrs.</b>



Module	Duration
<b>Module 4 - NodeJS and ExpressJS</b>	
<b>Unit 1</b> <ul style="list-style-type: none"><li>Local Development Setup Local, Development Environment Overview, Node JS Overview, Node JS Package, Manager(NPM) Overview.</li></ul>	
<b>Unit 2</b> <ul style="list-style-type: none"><li>Node JS Basics Introduction, Hello World Node JS, Built-in Modules-FS Module, HTTP Module, Global Module, Events.</li></ul>	
<b>Unit 3</b> <ul style="list-style-type: none"><li>Understanding ExpressJS, Introduction to ExpressJS, Basic Setup, Server Setup, Middleware.</li></ul>	<b>45 Hrs.</b>
<b>Unit 4</b> <ul style="list-style-type: none"><li>Web App Components, Routing, Get and Post Methods, Put and Delete, Request and Response Methods.</li></ul>	
<b>Unit 5</b> <ul style="list-style-type: none"><li>Introduction to Views in NodeJs, Applying EJS for Creating the Frontend in NodeJs.</li></ul>	
<b>Module 5 - MongoDB Basics</b>	
<b>Unit 1</b> <ul style="list-style-type: none"><li>Getting Started with MongoDB, Introduction to MongoDB, SQL vs NoSQL, Advantages and Disadvantages of MongoDB, Why MongoDB?, Applications.</li></ul>	
<b>Unit 2</b> <ul style="list-style-type: none"><li>Working with MongoDB, How to Setup MongoDB, MongoDB Compass, Adding Data, Managing Data, Querying Data in MongoDB Including Indexing, Aggregation Framework, query optimization, Sorting and Counting, Using Loops, Introduction to Model files and MongoDB Schema.</li></ul>	<b>45 Hrs.</b>
<b>Unit 3</b> <ul style="list-style-type: none"><li>Connection from Node to MongoDB Using Mongoose, CRUD Operations, Introduction to MongoDB Atlas.</li></ul>	
<b>Module 6 - ReactJS</b>	
<b>Unit 1</b> <ul style="list-style-type: none"><li>Understanding ReactJs, React Architecture and Components, Material UI Introduction, React Routing and Router DOM, Working with Forms and Data Fetch from the Forms, Introduction to React Hooks and Props, API Integration in React Using Axios, Integration with Backend Using CORS, React Authorization and Authentication Using Axios Interceptors and AuthGuard.</li></ul>	<b>45 Hrs.</b>
<b>Unit 2</b> <ul style="list-style-type: none"><li>Basic Concepts of React Redux and Associated Toolkit, Concepts of Session Management and Redux Thunk.</li></ul>	



Module	Duration
<b>Module 7 - Cloud Basics and Deployment</b>	
<b>Unit 1</b>	
<ul style="list-style-type: none"><li>Cloud Concepts Including Compute, Storage and Docker Concepts, Introducing DevOps CI/CD on Cloud, Concepts of AWS Hosting, Code Commit, Creation of Free Account and Deploying MERN Application on Cloud.</li></ul>	<b>40 Hrs.</b>
<b>Module 8 - Capstone Project</b>	
<ul style="list-style-type: none"><li>Applying knowledge and Skills Acquired Throughout the Program to Solve a Real-World Data Science Problem Using the Machine Learning Lifecycle.</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>