



ACE HACKER

Write Great Code

acehacker.com



ACE HACKER

Learn to write great code through immersive & hands-on classes. Sharpen your skills with programming competitions & hackathons. Connect & Collaborate with fellow coders, founders, and investors.

COURSES



Ace Hacker **Courses** are crafted to convey the most complex **STEM** concepts through engaging stories. Participate in these stories by engaging your thoughts, emotions, and imagination as you enter the narrative world and react to it. Tinker with the code in every story, push boundaries without fear of failure, build meaningful solutions to tackle real-world problems, and have fun along the way.



COMPETITIONS



Hack that code. Enhance your skills by participating in sprint **Programming Competitions** or marathon **Hackathons**. Beyond the intellectual growth, the thrill of competition adds an electrifying edge, giving you the chance to showcase your coding finesse and claim well-deserved bragging rights. The skills you hone and the memories you create will serve as lasting assets in your academic and professional pursuits.

CONFERENCES



Ace Hacker orchestrates **Colloquiums** and **Conferences** serving as a nexus for academicians, scholars, scientists, CXOs, and other luminaries in intellectual pursuits across diverse fields such as Artificial Intelligence, Quantum Computing, Blockchain, Cybersecurity, AR, VR, and Robotics, to name a few, with a mission to foster collaboration and knowledge exchange by bringing together the brightest minds to share their insights and research findings.





FULL STACK DEVELOPMENT

Using MERN STACK (MongoDB, Express, React, Node.js)



WHAT IS THIS COURSE ABOUT?

In this program, we delve into the dynamic world of the MERN stack—MongoDB, Express.js, React, and Node.js—equipping you with the skills to craft robust and modern web applications. Throughout this journey, you'll explore the intricacies of database management with MongoDB, master backend development using Express.js and Node.js, and dive into frontend design and interactivity with React. Prepare to immerse yourself in a world where coding becomes a canvas for your creativity and problem-solving skills. Our course is designed to empower you with the knowledge and expertise needed to thrive in the realm of Full Stack Development.

Get ready to build, innovate, and transform your ideas into reality with the MERN stack as your toolkit. Join us and embark on this exciting learning adventure!

SYLLABUS

Module 1: Introduction to Web Development and MERN Stack Fundamentals

- Overview of Web Development: History, Evolution, and Trends
- Introduction to MERN Stack (MongoDB, Express.js, React, Node.js)
- Setting up Development Environment (IDEs, Code Editors, Terminal Basics)
- Git and Version Control Basics
- Basics of HTML, CSS, and JavaScript
- Introduction to MongoDB: Database Basics, CRUD Operations
- Basics of Node

Module 2: Introduction to ES6 and JavaScript Fundamentals

- Overview of ES6 and its significance in modern web development
- Variables (let, const) and Block Scope
- Arrow Functions and their advantages
- Template Literals and String Interpolation
- Destructuring Assignment

Continues...





FULL STACK DEVELOPMENT

USING MERN STACK (Mongodb, Express, React, Node.js)

...In continuation

SYLLABUS

Module 3: ES6 Classes and Object-Oriented Programming

- Introduction to ES6 Classes: Constructors, Methods, and Inheritance
- Prototypal Inheritance and Object-oriented concepts in JavaScript
- Working with Modules (import/export)

Module 4: Asynchronous JavaScript and Promises

- Understanding Asynchronous JavaScript
- Callbacks vs. Promises vs. Async/Await
- Promise Chaining and Error Handling

Module 5: Enhanced Array Manipulation

- Iterators and Generators
- Array Methods: Map, Filter, Reduce
- Spread and Rest Operators for arrays

Module 6: ES6 Features for Web Development

- Enhanced Object Literals
- Sets and Maps
- Promises and Fetch API for asynchronous operations

Module 7: ES6 and React Integration

- Using ES6 features within React components
- State Management with ES6
- Lifecycle methods with ES6 syntax

Module 8: Advanced ES6 Concepts

- Proxies and Symbols
- Meta-programming with Reflect API
- Using ES6 features in conjunction with Node.js for backend development

Module 9: ES6 Best Practices and Tooling

- ES6 Code Transpilation using Babel
- Polyfills and backward compatibility
- Best Practices for writing clean and maintainable ES6 code

Module 10: Backend Development with Node.js and Express.js

- Deep Dive into Node.js: Asynchronous JavaScript, Event Loop
- Express.js Fundamentals: Routing, Middleware, Templating Engines
- Handling HTTP Requests and Responses
- Authentication and Authorization using JWT
- Error Handling and Debugging Techniques
- Working with RESTful APIs

Module 11: Database Management with MongoDB

- Advanced MongoDB: Data Modeling, Indexing, Aggregation Pipeline
- Integration of MongoDB with Node.js and Express.js
- Database Security and Best Practices
- Working with Mongoose ODM (Object Data Modeling)

Continues...





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USING MERN STACK (Mongodb, Express, React, Node.js)

...In continuation

SYLLABUS

Module 12: Frontend Development with React

- Introduction to React: Components, JSX, State, and Props
- React Router and Navigation
- Managing State with Redux or Context API
- Working with Forms and Form Validation
- Consuming RESTful APIs in React

Module 13: Full Stack Integration and Project Development

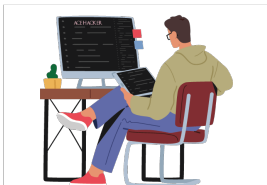
- Integrating Backend (Node.js and Express.js) with Frontend (React)
- Project Planning and Management
- Testing Strategies: Unit Testing, Integration Testing
- Deployment of MERN Stack Applications (Heroku, AWS, or similar platforms)
- Continuous Integration and Continuous Deployment (CI/CD) pipelines

Module 14: Advanced Topics and Specializations

- Server-Side Rendering with React
- Real-time Web Applications using WebSockets
- GraphQL and its Integration with MERN Stack
- Microservices Architecture and Containerization (Docker)
- Performance Optimization and Scaling Strategies

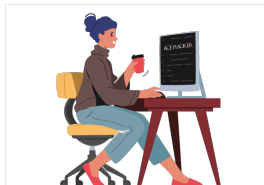
Module 15: Final Project and Portfolio Development

- Capstone Project: Building a Full-fledged Web Application
- Peer Review and Feedback Sessions
- Creating an Online Portfolio showcasing Projects



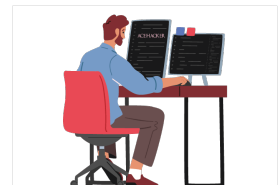
EXERCISES

To augment your proficiency in these subjects, you will be regularly challenged with various assignments like coding challenges, algorithmic puzzles, trick logical, analytical, and mathematical problems - designed to enable you to think creatively and outside the box.



PROJECTS

The projects are designed to ensure that you not only understand the theoretical concepts of Full Stack Web Development, but also gain hands-on experience in applying those concepts to real-world scenarios. You'll be required to collaborate as a team to attempt some projects while working as a individual contributor on others.



COMPETITIONS

Competitions and Hackathons are a great way to reinforce your learning and to challenge you to apply your skills to real-world scenarios. By participating in these events, you will gain practical experience and develop your problem-solving skills. You will be participating in a variety of events, including but not limited to Sprint Coding Competitions, Marathon Hackathons, and Catch-the-Flag (CTF) challenges.

