

Course Duration: 6 months (24 weeks)

- **Phase 1 (3 months):** Foundations in Full-Stack Development
 - **Phase 2 (3 months):** Startup Product Development
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Course Structure

- **Online Lectures:** 5 online theory lectures (covering programming basics)
 - **In-Person Sessions:** Workshops, hands-on sessions, and project guidance
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Phase 1: Foundations in Full-Stack Development (12 Weeks)

Objective: Equip students with essential skills in JavaScript, Node.js, Express, and React.js, while introducing wireframe design using Figma. By the end of this phase, students will build a simple web app to apply their skills.

Week 1-2: Introduction to Programming with JavaScript

- **Online Lecture:** Basics of JavaScript, syntax, variables, data types, functions, and control flow.
 - **In-Person Workshop:** Practice exercises on JavaScript fundamentals.
 - **Assignment:** Build a simple JS program (e.g., a basic calculator).
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Week 3-4: Advanced JavaScript and DOM Manipulation

- **Online Lecture:** Understanding objects, arrays, loops, event handling, and the Document Object Model (DOM).
 - **In-Person Workshop:** Manipulating the DOM, creating dynamic web pages.
 - **Assignment:** Develop an interactive webpage using JS and DOM.
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Week 5-6: Backend Development with Node.js and Express

- **Online Lecture:** Introduction to server-side programming, Node.js basics, setting up a server, and RESTful APIs with Express.

- **In-Person Workshop:** Building a basic API (CRUD operations) using Node.js and Express.
 - **Assignment:** Create a simple API for a to-do list application.
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Week 7-8: Frontend Development with React.js

- **Online Lecture:** Introduction to React.js, components, state, and props. Introduction to JSX.
 - **In-Person Workshop:** Build a simple React app with basic routing.
 - **Assignment:** Create a basic single-page application (e.g., a simple blog).
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Week 9-10: Integrating Frontend and Backend

- **Online Lecture:** Connecting React frontend with Node.js backend, understanding REST APIs.
 - **In-Person Workshop:** Build a full-stack toy web application (e.g., a notes app with backend data storage).
 - **Assignment:** Full-stack project submission.
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Week 11-12: Wireframing and UI/UX Design with Figma

- **Online Lecture:** Introduction to Figma, wireframing, and basic UI/UX principles.
 - **In-Person Workshop:** Create wireframes for the final startup product.
 - **Assignment:** Create the wireframe for the startup's product idea using Figma.
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Phase 2: Startup Product Development (12 Weeks)

Objective: Guide students through the process of building and launching their startup products, from architecture to development, deployment, and marketing.

Week 13-14: Ideation and Architecture Planning

- **In-Person Session:** Teams present their startup product ideas, work with instructors to finalize the tech stack and product architecture.
- **Workshop:** Break down the architecture of successful products. Discuss design patterns, scalability, and project management techniques (e.g., Agile).

Week 15-16: Setting Up the Development Environment

- **In-Person Session:** Assist students in setting up their development environments (repositories, CI/CD pipelines, cloud hosting).
- **Workshop:** Introduction to tools like Git, Docker, and cloud services (AWS, Heroku).

Week 17-18: Frontend Development

- **In-Person Session:** Focus on building the frontend with React.js based on the Figma wireframes.
- **Workshop:** Deep dive into React hooks, state management, and optimizing performance.
- **Deliverable:** Initial version of the product's frontend.

Week 19-20: Backend Development

- **In-Person Session:** Develop the backend using Node.js and Express. Integrate with the frontend.
- **Workshop:** Focus on database integration (MongoDB, PostgreSQL) and API security.
- **Deliverable:** Functional backend API integrated with the frontend.

Week 21-22: Testing and Deployment

- **In-Person Session:** Teach students about automated testing (unit, integration, and end-to-end testing) and prepare for deployment.
- **Workshop:** Deployment to a cloud platform (e.g., AWS, Heroku). Ensure that the product is live.
- **Deliverable:** Deployed beta version of the product.

Week 23-24: Product Finalization and Marketing

- **In-Person Session:** Refine and finalize the product. Discuss product launch strategies and digital marketing (SEO, social media).
 - **Workshop:** Focus on scalability, performance tuning, and monitoring tools.
 - **Deliverable:** Launch-ready product and marketing plan.
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Project Evaluation Criteria

1. **Technical Functionality:** The product's working features and technical soundness.
 2. **User Experience:** The design and usability of the product, based on the Figma wireframes.
 3. **Innovation:** Originality and creativity of the startup idea and product.
 4. **Business Viability:** Feasibility of taking the product to market.
 5. **Team Collaboration:** Evaluation of teamwork and project management.
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Additional Support

- **Mentorship:** Each team will be assigned a mentor for technical guidance and startup advice.
 - **Office Hours:** Weekly office hours for students to ask questions and seek help with their projects.
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Tools and Platforms:

- **Programming:** VS Code, Git, Node.js, React.js, Express, MongoDB/PostgreSQL
 - **Design:** Figma
 - **Collaboration:** GitHub, Slack, Trello
 - **Cloud Hosting:** AWS, Heroku
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Summary

The course provides a comprehensive pathway from learning the foundational programming skills to developing and launching real-world startup products. It is structured to balance online theoretical learning with hands-on, in-person workshops. The final product should be a live, functional web or mobile app ready for market entry.

Would you like to discuss specific details about any aspect of this plan, such as assignments, in-person sessions, or the final project criteria?