

Web Development Curriculum

Introduction to Web Development

- Overview of web development technologies and tools
- Setting up the development environment
- Introduction to HTML, CSS, and JavaScript
- Responsive design principles

Frontend Development

- Advanced HTML5 & CSS3
- CSS Frameworks (e.g., Bootstrap, Tailwind CSS)
- JavaScript fundamentals & DOM manipulation
- JavaScript ES6+ features
- React.js basics & state management
- Building interactive UIs with React

Backend Development

- Introduction to server-side programming (Node.js, Express.js)
- Working with databases (MongoDB, SQL)
- RESTful APIs and integration
- User authentication & authorization (JWT, OAuth)

Web Development Tools & Best Practices

- Git & GitHub for version control
 - Task runners and bundlers (Webpack, Gulp)
 - Debugging and testing tools
 - Deployment and hosting options (Heroku, Netlify, AWS)
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UI/UX Design Curriculum

Introduction to UI/UX Design

- What is UI/UX and the importance of design
- Difference between UI and UX
- Design thinking process

UX Research and Strategy

- User research methods: Surveys, interviews, and usability testing
- Persona creation and user journey mapping
- Analyzing and interpreting data to guide design decisions

UI Design Fundamentals

- Color theory and typography
- Layout design and grids
- Designing for different screen sizes and devices (mobile-first design)
- Tools: Figma, Sketch, Adobe XD

Prototyping and User Testing

- Creating wireframes and prototypes
- Conducting user testing and gathering feedback
- Iterating designs based on feedback

Advanced UI/UX Practices

- Animation and transitions in design
 - Interactive prototypes
 - Collaboration with developers
 - Accessibility and inclusivity in design
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Cybersecurity Curriculum

Introduction to Cybersecurity

- Understanding the importance of cybersecurity
- Types of cyber threats (malware, phishing, ransomware)
- Cybersecurity frameworks and standards (NIST, ISO)

Network Security

- Fundamentals of networking (IP addresses, DNS, HTTP, etc.)
- Firewalls, VPNs, and intrusion detection systems
- Securing wireless networks

Threats and Attacks

- Common attack vectors (SQL Injection, Cross-Site Scripting)
- Social engineering attacks (Phishing, Spear Phishing)
- Denial of Service (DoS) and Distributed Denial of Service (DDoS) attacks

Cryptography and Encryption

- Introduction to encryption and hashing
- Symmetric and asymmetric encryption
- SSL/TLS protocols and secure communication

Cybersecurity Best Practices

- Password security and multi-factor authentication (MFA)
- Securing cloud environments
- Incident response and disaster recovery plans

Ethical Hacking and Penetration Testing

- Penetration testing methodologies
- Tools for ethical hacking (Metasploit, Wireshark, Burp Suite)
- Vulnerability scanning and exploitation