Full Course Title: Full Stack Web Development   **Instructional Hours (Contact Hours):** 90

Course Description:

This comprehensive hands-on course provides students with a robust understanding of full stack web development, focusing on both front-end and back-end technologies. Participants will gain practical skills in designing, developing, and deploying dynamic web applications using Django for the backend, React for the front end, and database management with MySQL and PostgreSQL. Deployment strategies will include utilizing AWS. This course prepares students for real-world scenarios in the tech industry.

Learning Outcomes:

- Develop responsive and interactive web pages using React.
- Utilize Django for server-side programming and backend logic.
- Design and manage databases using MySQL and PostgreSQL.
- Integrate front-end and back-end components to create full-stack applications.
- Deploy web applications to AWS.
- Apply version control using Git and collaborate effectively with team members.
- Use VS Code as an integrated development environment for full stack development.

Learning Activities:

☒ Class Discussions/Discussion Boards   ☒ Student Projects

☒ Peer-to-Peer Work (pairs, small groups)   ☒ Readings

☒ Written Assignments (reports, essays)   ☒ Textbook/Workbook Exercises

☒ Case Study Analysis   ☐ Other:

Methods of Assessment/Grading Criteria:

☒ Class/Discussion Boards Participation   ☒ Individual Projects/Presentations

☒ Written Assignments (reports, essays)   ☒ Group Projects/Presentations

☒ Exams/Quizzes   ☐ Other: Click to enter

Course Topics:

- **Python**
  - Basics of Python
  - Python Data Structures
  - OOPS
- **Front-End Development with React:**
  - React basics and component-based architecture
  - State management with Redux
  - Routing with React Router
- **Backend Development with Django:**
  - Django framework basics
  - Models, Views, and Templates (MVT)
  - RESTful API development with Django REST framework

- **Database Management:**
  - SQL with MySQL and PostgreSQL
  - Database design and management
  - ORM with Django
- **Development Environment with VS Code:**
  - Setting up and configuring VS Code
  - Extensions and productivity tools
  - Debugging and version control with Git
- **Full-Stack Integration:**
  - Connecting React frontend with Django backend
  - API consumption and integration
  - Authentication and authorization
- **Deployment on AWS:**
  - AWS basics and services overview
  - Deploying Django applications on EC2
  - Using RDS for database management

Prerequisites:

Previous knowledge of basic programming concepts is required before taking this course. Familiarity with HTML, CSS, and JavaScript is recommended.