DIPLOMA IN BACK END DEVELOPMENT

Duration: 1 Year (2Semester)

Eligibility: 12th Pass / Basic Computer Knowledge (HTML/CSS recommended)

Mode:Theory + Practical+ LiveProjects

Semester 1 – Programming & Database

Foundations

Programming Fundamentals (Python / Node.js)

- Introduction to Backend
- Variables & Data Types
- Conditional Statements
- Loops
- Functions
- Error Handling
- File Handling

Practical:

- Small Programs
- File Upload System
- CLI-Based Project

Database Management (SQL)

- Introduction to Database
- MySQL Installation
- Tables & Relationships
- CRUD Operations
- SELECT, INSERT, UPDATE, DELETE
- Joins
- Basic Query Optimization

Practical:

- Student Database
- Employee Management System

API Development Basics

- What is API?
- RESTful API Concept
- HTTP Methods (GET, POST, PUT, DELETE)

- JSON
- Postman Testing

Semester 2 – Advanced Backend Development

Backend Framework
OptionA: Node.js + Express
OR
Option B: Python + Django

- Server Setup
- Routing
- Middleware
- Authentication
- JWT Basics
- Session Handling

Database Integration

- Connecting Backend to Database
- ORM Concept
- Data Validation
- Secure Queries

Authentication & Security

- Logi/Signup System
- Password Encryption
- Token Based Authentication
- Role Based Access
- Basic Cyber Security Practices

Deployment & DevOps Basics

- Git & GitHub
- Environment Variables
- Hosting Backend (Render / Railway / AWS Basic)
- Server Monitoring Basics

Final Projects

- User Authentication System
- Blog API
- E-Commerce Backend
- Admin Dashboard Backend
- Final Viva & Presentation

Examination Pattern

- Theory – 100 Marks
- Practical – 100 Marks
- Project – 100 Marks
- Viva – 100 Marks

Career Opportunities

- Backend Developer
- Node.js Developer
- Python Developer
- API Developer
- Server-Side Developer
- Junior Software Engineer