

PGDCA

Post Graduate Diploma in Computer Applications covering advanced software engineering, programming in Python/C++, PostgreSQL & relational database design, computer networks, and full stack web architecture.

Duration 48 Weeks (360 Hours)	Training Mode Offline Classroom Training	Certification Industry Certificate	Practical Labs 100% Hands-on
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Detailed Course Curriculum & Modules

MODULE 01 Computer Architecture & Advanced OS - Advanced Computer Systems & Memory Hierarchies - Process Scheduling, Concurrency & Deadlocks - Linux System Administration & Shell Scripting - Virtualization & Containerization Basics	MODULE 02 Object-Oriented Programming (Python & C++) - OOP Principles: Encapsulation, Inheritance, Polymorphism - Data Structures: Arrays, Linked Lists, Stacks, Queues, Trees - File I/O, Exception Handling & Memory Management - Standard Template Library (STL) & Python Standard Library	
MODULE 03 Relational Database Engineering & SQL - Advanced Relational Algebra & Normalization (1NF to BCNF) - Complex SQL Queries, Joins, Subqueries & Indexes - Stored Procedures, Triggers & ACID Transactions - PostgreSQL Administration & Optimization	MODULE 04 Software Engineering & System Analysis - SDLC Methodologies (Agile, Scrum, Waterfall) - UML Diagramming: Use Case, Class, Sequence & Activity - Software Testing, QA & Automated Test Frameworks - Version Control with Git & GitHub Workflows	
MODULE 05 Web Technologies & Application Frameworks - Modern JavaScript (ES6+), DOM Manipulation & Fetch API - Backend Web Development with Python/Node.js - RESTful API Architecture & Authentication (JWT/OAuth) - Database Integration with Web Applications	MODULE 06 Computer Networks & Cybersecurity - OSI & TCP/IP Model Layers & Protocols - Routing, Switching, Subnetting & IP Addressing - Network Security, Firewalls, SSL/TLS Encryption - Cryptography & Ethical Security Practices	
MODULE 07 Capstone Industry Project & Deployment - End-to-End Enterprise Web Application Development - Database Design, API Building & Frontend Integration - Cloud Deployment (CI/CD, Docker, Cloud Hosting) - Project Presentation, Documentation & Defense		
■ Industry Certification Authorized certificate verified globally via online portal.	■ 100% Placement Support Resume review, mock interviews, and recruiter connections.	■ Lab Access & Mentorship Dedicated workstation lab hours with expert guidance.