

### Post Graduate Diploma in Computer Application - PGDCA

<u>SEMESTER 1:</u>	
<u>COMPUTER FUNDAMENTALS AND OPERATING SYSTEMS</u>	<u>PROGRAMMING IN C</u>
<ul style="list-style-type: none"> <li>• Introduction to computer hardware and software</li> <li>• Operating system concepts and functions</li> <li>• File management and basic system administration</li> </ul>	<ul style="list-style-type: none"> <li>• Fundamentals of programming</li> <li>• Data types, operators, and control structures</li> <li>• Functions, arrays, and pointers in C</li> </ul>
<u>DATA STRUCTURES</u>	<u>DATABASE MANAGEMENT SYSTEMS (DBMS)</u>
<ul style="list-style-type: none"> <li>• Introduction to data structures</li> <li>• Arrays, linked lists, stacks, and queues</li> <li>• Tree and graph data structures</li> </ul>	<ul style="list-style-type: none"> <li>• Introduction to DBMS</li> <li>• Relational database concepts</li> <li>• SQL (Structured Query Language) and database design</li> </ul>
<u>COMPUTER NETWORKS</u>	
<ul style="list-style-type: none"> <li>• Basics of computer networking</li> <li>• Network topologies and protocols</li> <li>• Internet and intranet concepts</li> </ul>	
<u>SEMESTER 2:</u>	
<u>OBJECT-ORIENTED PROGRAMMING (OOP) WITH C++</u>	<u>DATA COMMUNICATION AND NETWORKING</u>
<ul style="list-style-type: none"> <li>• Introduction to OOP</li> <li>• Classes and objects</li> <li>• Inheritance, polymorphism, and templates in C++</li> </ul>	<ul style="list-style-type: none"> <li>• Data transmission and modulation</li> <li>• Network layers and protocols (TCP/IP)</li> <li>• Network security and wireless networks</li> </ul>
<u>WEB TECHNOLOGIES</u>	<u>SOFTWARE ENGINEERING</u>

**Website:** [www.nextgenindore.com](http://www.nextgenindore.com)

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# NEXTGEN

## Computer Institute

<ul style="list-style-type: none"> <li>• HTML, CSS, and JavaScript</li> <li>• Web development tools and frameworks</li> <li>• Building and hosting a website</li> </ul>	<ul style="list-style-type: none"> <li>• Software development life cycle (SDLC)</li> <li>• Requirements analysis and software design</li> <li>• Testing, maintenance, and project management</li> </ul>
<b><u>OPERATING SYSTEM CONCEPTS</u></b>	
<ul style="list-style-type: none"> <li>• Process management and scheduling</li> <li>• Memory management and virtual memory</li> <li>• File systems and I/O management</li> </ul>	
<b><u>SEMESTER 3:</u></b>	
<b><u>JAVA PROGRAMMING</u></b>	<b><u>DATABASE MANAGEMENT SYSTEMS (ADVANCED)</u></b>
<ul style="list-style-type: none"> <li>• Introduction to Java</li> <li>• Object-oriented programming in Java</li> <li>• GUI programming with Swing</li> </ul>	<ul style="list-style-type: none"> <li>• Advanced SQL concepts</li> <li>• Database administration and security</li> <li>• Introduction to NoSQL databases</li> </ul>
<b><u>WEB DEVELOPMENT (ADVANCED)</u></b>	<b><u>SOFTWARE TESTING AND QUALITY ASSURANCE</u></b>
<ul style="list-style-type: none"> <li>• Server-side scripting (e.g., PHP)</li> <li>• Database-driven web applications</li> <li>• Web services and APIs</li> </ul>	<ul style="list-style-type: none"> <li>• Testing methodologies and strategies</li> <li>• Test planning and automation</li> <li>• Quality assurance and quality control</li> </ul>
<b><u>PROJECT WORK</u></b>	
<ul style="list-style-type: none"> <li>• Development of a significant software project</li> <li>• Project management and documentation</li> <li>• Presentation and evaluation</li> </ul>	

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### ELECTIVE MODULES (CHOOSE ONE OR MORE, DEPENDING ON THE PROGRAM):

<u>MOBILE APP DEVELOPMENT</u>	<u>DATA ANALYTICS AND BUSINESS INTELLIGENCE</u>
<ul style="list-style-type: none"><li>• Introduction to mobile app development</li><li>• Android or iOS app development</li><li>• Mobile app testing and deployment</li></ul>	<ul style="list-style-type: none"><li>• Data analysis tools and techniques</li><li>• Data visualization</li><li>• Business intelligence and reporting</li></ul>
<u>ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING</u>	<u>CYBERSECURITY</u>
<ul style="list-style-type: none"><li>• Basics of AI and ML</li><li>• Machine learning algorithms and applications</li><li>• Building AI/ML models</li></ul>	<ul style="list-style-type: none"><li>• Introduction to cybersecurity</li><li>• Network security and ethical hacking</li><li>• Security policies and incident response</li></ul>

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