Postgraduate Diploma in Product Engineering

Semester 1

Duration – 80 Hours

Program Description

PGCP-PE Semester 1 is designed for professionals to enhance their expertise in analytics, automation, proactive monitoring, and predictive engineering. Learners will gain skills in data accuracy, statistical methods, visualization, and dashboarding to generate actionable insights. The program also covers automation with Python and RPA, real-time monitoring with alerting and Grafana dashboards, and predictive techniques for forecasting, optimization, and incident prevention—equipping participants to drive efficiency, reliability, and continuous improvement in their organizations.

Learning Goals

- ❖ Learn to apply statistical methods, regression, and predictive modeling for accurate data analysis and insights.
- ❖ Gain skills to build dashboards and visualizations that communicate trends and support decision-making.
- ❖ Develop the ability to automate repetitive processes using Python, RPA, and spreadsheets.
- ❖ Explore automation workflows for data analysis, reporting, email handling, and task scheduling.
- ❖ Apply proactive monitoring techniques with alerting rules and real-time notifications.
- ❖ Design and customize Grafana dashboards while leveraging monitoring data for incident management.
- ❖ Build predictive models for forecasting, maintenance optimization, and risk mitigation.
- ❖ Integrate predictive analytics into workflows to optimize performance and drive continuous improvement.

Course Topics

- ❖ Logistics
- ❖ Computer Science Fundamentals
- ❖ Data Analytics
- ❖ Automation
- ❖ Proactive Monitoring
- ❖ Predictive Engineering
- ❖ Capstone Project – Logistics Domain

Semester 2

Duration – 80 Hours

Program Description

The PGCP PE - Program is designed for professionals aspiring to build expertise in cloud-native application development and modern software engineering practices. The program provides a strong foundation in agile methodologies, software architecture, and microservices. Learners will gain hands-on experience with Java programming, object-oriented principles, and clean coding practices while ensuring application reliability through testing, security, and distributed tracing.

The program also emphasizes full-stack development with JavaScript, ReactJS, Spring Boot, and NoSQL databases, combined with DevOps practices including scripting, version control, CI/CD pipelines, containerization, and orchestration. With exposure to leading tools such as Jenkins, Docker, Kubernetes, Splunk, and Dynatrace, participants will be equipped to develop scalable, secure, and reliable cloud-native applications.

Learning Goals

❖ Learn the foundations of cloud-native applications, software architecture, and agile practices.
❖ Explore object-oriented programming with Java, applying clean coding principles and modern Java features.
❖ Develop reliable, secure, and maintainable applications by applying testing, tracing, and programming best practices.
❖ Gain proficiency in Linux/Unix, shell scripting, and Git for effective DevOps and version control.
❖ Build engaging user interfaces with JavaScript and ReactJS frameworks.
❖ Design backend systems using Spring Boot, microservices, Kafka, and NoSQL databases like MongoDB.
❖ Apply DevOps tools such as Jenkins, Chef, Docker, and Kubernetes for automation, CI/CD, and container orchestration.
❖ Integrate monitoring and testing tools like Selenium, Splunk, ELK, and Dynatrace to ensure reliability and performance.

Course Topics

❖ Fundamentals of Software Product Design & Solution Architecture
❖ Software Product Programming - Coding & Quality
❖ Software Reliability with Distributed Tracing
❖ DevOps - Scripting & Version Control
❖ Frontend Development
❖ Backend Development
❖ DevOps - Configuration, Automation and Deployment
❖ Capstone Project – (Logistics Domain)