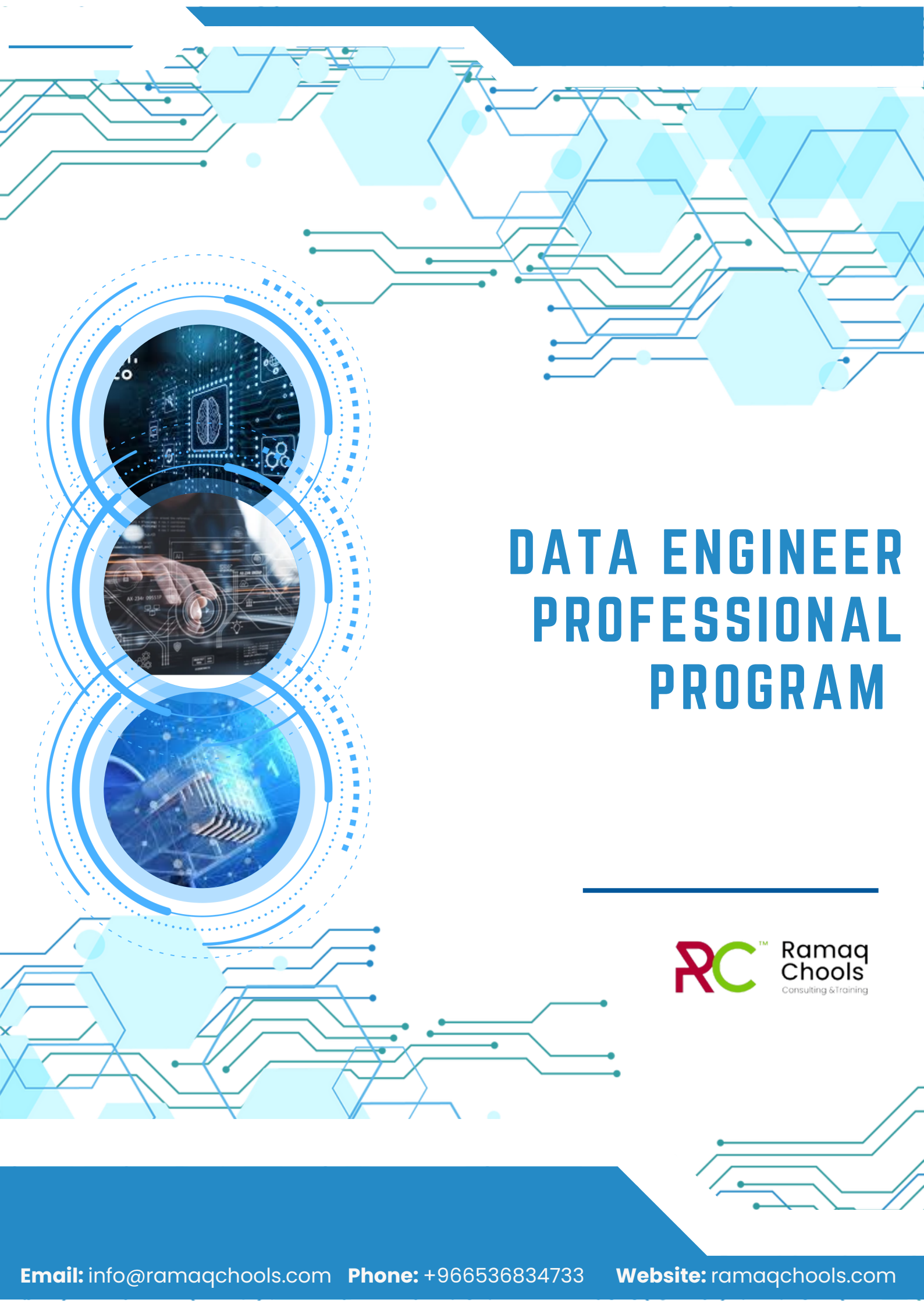




# DATA ENGINEER PROFESSIONAL PROGRAM

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**RC**™ Ramaq  
Chools  
Consulting & Training

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# INTRODUCTION TO DATA ENGINEERING

Hey there, future data engineer! Data engineering is the backbone of any data-driven organization, focusing on designing, building, and maintaining the systems that enable data collection, storage, processing, and analysis. Our comprehensive curriculum, hands-on projects, and expert guidance will prepare you to excel in this essential and growing field.





# Why Choose Chools?

## Numbers That Speak for Themselves:

- 10,000+ Successful Alumni: Join a network of impactful professionals.
- 95% Job Placement Rate: Secure your future with Chools' proven track record.
- 20+ Years of Excellence: Trust in a legacy of education and industry expertise.
- 200+ Industry Partnerships: Leverage our connections for real-world insights and opportunities.

## What Sets Us Apart?

- **Expert Instructors:** Learn from industry veterans with hands-on experience.
- **Hybrid Learning Model:** Balance online flexibility with in-person engagement.
- **Comprehensive Curriculum:** Stay ahead with courses designed to meet market demands.
- **Community and Networking:** Be part of an active community of learners and professionals.

## Who Can Apply?

### Eligibility Criteria:

- Bachelor's degree in any subject, preferably with a STEM background. Good command of English.





### Ideal Candidates:

- Professionals with at least 2 years of work experience looking to specialize in data engineering, graduates aiming to enhance their technical skills, and individuals with a basic understanding of object-oriented programming, SQL, databases, and Apache Spark.

## Program Overview

**The Data Engineer Professional Program at Chools provides an in-depth education in data engineering, combining theoretical knowledge with practical, hands-on experience. Our program is structured into four progressive stages, each building on the previous one to ensure a comprehensive understanding of the field.**

### Learning Mode:

- **Hybrid Learning Model:** Combines online learning with in-person sessions for flexibility and interactive engagement.
- **Interactive Sessions:** Includes live webinars, workshops, and Q&A forums with expert instructors and peers.
- **Self-paced Learning:** Access course materials anytime, allowing you to learn at your own pace.



# Skills Learned

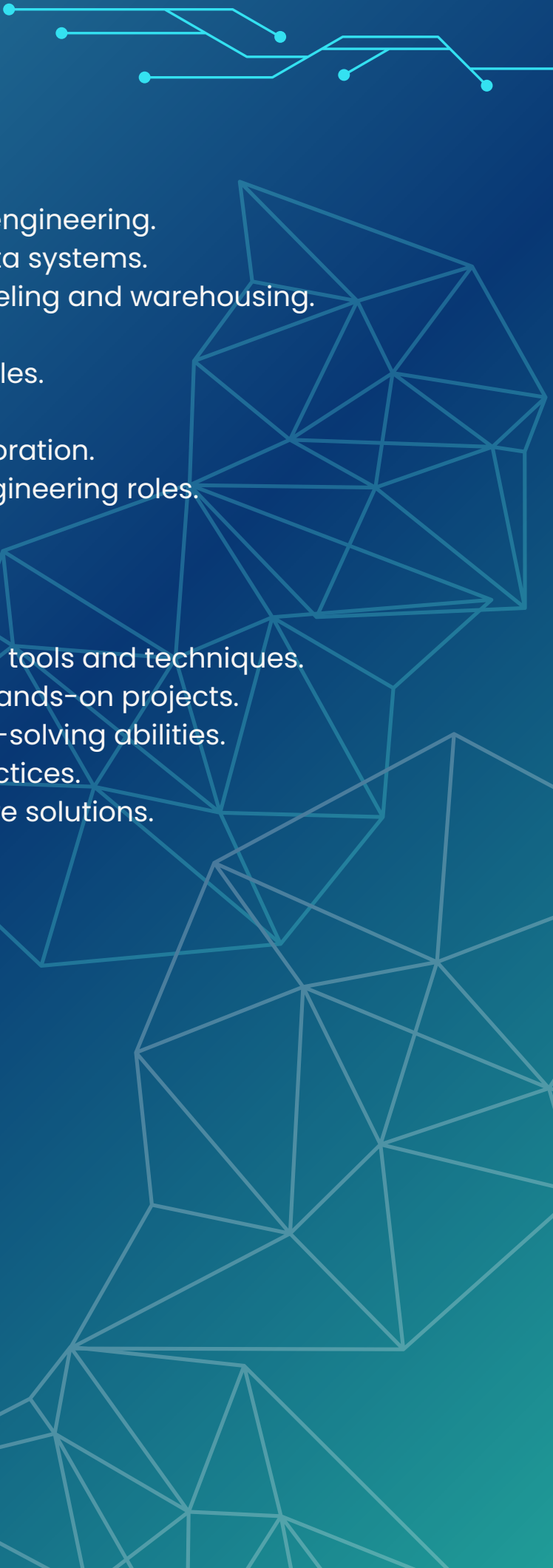
- **Data Modeling:** Designing and structuring data for efficient use.
- **Data Warehousing:** Building systems for storing and managing large data sets.
- **Data Lakes:** Implementing scalable data storage solutions.
- **Data Pipelines:** Automating data workflows and ETL processes.
- **SQL:** Advanced querying and database management.
- **Apache Spark:** Distributed data processing.
- **Big Data Technologies:** Hadoop, Spark for handling large data sets.
- **Cloud Computing:** Using cloud platforms for data engineering tasks.
- **Data Ethics:** Understanding responsible data use.
- **Data-driven Decision Making:** Supporting business strategies with data.

# Job Positions and Opportunities

- **Career Paths:** Data Engineer, Data Architect, ETL Developer, Big Data Engineer, Data Warehouse Engineer, Cloud Data Engineer, Analytics Engineer.
- **Industry Demand:** High demand across sectors, competitive salaries, and growth opportunities.

# Key Industry Verticals

- **Where Your Skills Are Needed:** Finance, Healthcare, Retail, Technology, Marketing, Manufacturing, Energy, Education, Telecommunications, Logistics and Supply Chain, Government and Public Services.

The background features a dark blue gradient with decorative elements. At the top right, there are light blue circuit-like lines with dots at their ends. On the right side, there are several overlapping, light blue wireframe geometric shapes, including cubes and polyhedrons, creating a modern, tech-oriented aesthetic.

## Program Objectives

- Master technical skills in data engineering.
- Design, build, and maintain data systems.
- Develop expertise in data modeling and warehousing.
- Create efficient data pipelines.
- Understand data ethics principles.
- Foster continuous learning.
- Promote teamwork and collaboration.
- Prepare for advanced data engineering roles.

## Expected Outcomes

- Proficiency in data engineering tools and techniques.
- Practical experience through hands-on projects.
- Strong analytical and problem-solving abilities.
- Application of ethical data practices.
- Innovation in data infrastructure solutions.



# PROGRAM OUTLINE

## Stage 1: Fundamentals of Data Engineering

### 1. Introduction to Data Engineering

- o Core principles, tools, and industry applications.

### 2. Basics of Data Modeling

- o Designing data structures and schemas.

### 3. SQL for Data Management

- o Database design, querying, and data management fundamentals.

### 4. Introduction to Data Warehousing

- o Concepts, architecture, and applications.

## Stage 2: Advanced Analytical Tools

### 5. Advanced SQL Techniques

- o Complex queries, performance optimization.

### 6. Data Lakes and Big Data Technologies

- o Implementing data lakes, using Hadoop and Spark.

### 7. Data Pipelines and ETL Processes

- o Designing and automating data workflows.

### 8. Cloud Computing for Data Engineering

- o Using cloud platforms for scalable data solutions.

## Stage 3: Practical Applications

### 9. Data Cleaning and Preprocessing

- o Techniques for ensuring data quality and reliability.

### 10. Exploratory Data Analysis (EDA)

- o Analyzing data distributions, identifying patterns.

### 11. Advanced Data Integration Techniques

- o Integrating data from multiple sources.

### 12. Real-time Data Processing

- o Implementing real-time data workflows and stream processing.

## Stage 4: Capstone Project

### 13. Integration of Learned Skills

- o Apply tools and techniques to real-world problems, comprehensive solutions.

### 14. Advanced Machine Learning Algorithms

- o Implementing and optimizing machine learning models.

### 15. Time Series Analysis

- o Techniques for analyzing and forecasting temporal data.

### 16. Data Engineering for AI and ML

- o Building infrastructure to support AI and ML applications.



# PROGRAM OUTLINE

## Elective Modules

### 17. Data Ethics and Privacy

- o Ethical considerations, privacy laws, compliance strategies.

### 18. Big Data Security

- o Securing data in big data environments.

### 19. Advanced Data Warehousing

- o Optimizing data warehousing solutions.

### 20. Predictive Analytics

- o Building and validating predictive models.

### 21. Data Mining

- o Techniques for clustering, classification, and discovery.

### 22. Data-Driven Decision Making

- o Using data to drive business strategies and decisions.

### 23. Data Engineering with Apache Spark

- o Advanced data processing with Spark.

### 24. Cloud Data Engineering

- o Building and managing data solutions on the cloud.

### 25. Data Engineering Project Management

- o Leading data engineering projects, ensuring successful delivery.

## Enrollment Now Open!

Take the first step towards a data-driven future. Join our Data Engineer Professional Program and become a certified data engineer with Chools.