B.Sc Data science

Data Analytics & Machine Learning

EDGE+ Model (2026–27)

Learning Zones / Pathway	Global Pathway	Pathway 1	Pathway 2
International Travel & Study	1 USA / Europe / Auz/ Sing	1 GCC / Southeast Asia	NA
National Travel & Study	NA	NA	1
Regional Travel & Study	1	1	1
Industry Micro-Credential Course	3	2	2
Outbound Leadership training	1	1	1
International online courses (COURSERA)	Learn from 350+ world leading universities with access to 15000+ global courses through COURSERA		
Sponsorship for Registration in National Events	✓	✓	✓
Foreign Language#	✓	✓	✓
Career Prep – CAT/ TOEFL/ IELTS#	✓	✓	✓

**For immersion programs, only the course fee will be covered by the college through the Pathway. Students will be responsible for all other expenses, including travel, food, accommodation, and personal costs.*

 # Open options that students may choose based on their career aspirations & learning Goals

Program Overview

The B.Sc Data Science program at KCLAS prepares students for high-growth careers in data analytics, artificial intelligence, software development, cloud computing, and business intelligence. The program blends strong theoretical foundations with hands-on industry exposure, real-time projects, and immersive learning experiences.

Through the Edge+ model, students gain skills in:

- Programming (Python, R, SQL)
- Machine Learning & Artificial Intelligence
- Data Analytics & Visualization
- Full Stack Application Development
- Cloud Technologies & Big Data Systems
- Cybersecurity & Ethical Data Practices

This integrated approach ensures that students are industry-ready, equipped with in-demand technical skills, and prepared for higher studies or professional careers in the technology and analytics ecosystem.

Learning Themes

No.	Learning Theme	Focus / Industry Relevance
1	Data Analytics & Business Intelligence	Builds analytical thinking and dashboarding skills using Python, R, SQL, Power BI, and Tableau—core for analyst roles.
2	Machine Learning & AI Applications	Covers supervised/unsupervised ML, deep learning, NLP—essential for data scientist and ML engineer roles.
3	Statistical Modeling & Predictive Techniques	Foundation for forecasting, risk modeling, optimization, and algorithm design used in finance, retail, and healthcare.
4	Data Engineering Foundations	Introduces ETL processes, data pipelines, warehousing, and big data systems—high demand in enterprise analytics teams.
5	Data Ethics, Privacy & Responsible AI	Ensures understanding of ethical AI usage, data governance, cybersecurity basics, and compliance—critical across industries.

Learning Experience under Edge+

Component	Description
Micro-Credential Courses	Advanced Excel, Python for Data Science, Power BI/Tableau, Machine Learning Fundamentals, Full Stack Development, Cloud Computing (AWS/Azure), and Data Engineering Tools.
Regional & National Immersions	Visits to IT companies, analytics firms, product development companies, startups, tech incubators, data labs, and software development centers.
Global Immersion	Exposure to international tech ecosystems, AI labs, cloud innovation centers, and global universities specializing in data science and computing.
Online Learning	Access to Coursera specializations in AI, ML, cloud computing, programming, cybersecurity, and data visualization from leading global universities.
Outbound Learning	Problem-solving, team-building, design thinking, hackathons, and leadership development through experiential outdoor modules.
Foreign Language	Training in languages such as German, Japanese, or French to support global tech careers, internships, and higher education opportunities.
Career Prep	Focused preparation for tech interviews, coding tests, hackathons, certifications (AWS, Google Cloud, Azure), and entrance tests for postgraduate programs (MS, MTech, MBA Analytics).

Programme Specific Outcomes

PSO	Description	Mapped Edge+ Component
PSO1	Apply data science techniques including data collection, cleaning, analysis and interpretation	Data Analytics Labs, ETL Pipelines, Power BI/Tableau Dashboards
PSO2	Develop predictive models using machine learning and statistical methods	ML Micro-Credentials, AI Projects, Kaggle-Style Competitions
PSO3	Build end-to-end software products using full stack development	Web Development Micro-Credentials, Cloud Deployment, API Engineering
PSO4	Work with cloud platforms and big data technologies	AWS/Azure Labs, DevOps Practices, Big Data Analytics (Hadoop/Spark)
PSO5	Apply ethical, legal, and security principles in data handling	Data Privacy Modules, Cybersecurity, Responsible AI Training

Career Opportunities – B.Sc Data Science

Category	Career Roles
1. Data Analytics & BI	Data Analyst, Business Analyst, BI Developer, Reporting Analyst
2. Machine Learning & AI	Machine Learning Engineer, AI Engineer, Data Scientist, NLP Engineer
3. Full Stack & Cloud Engineering	Full Stack Developer, Cloud Engineer (AWS/Azure), DevOps Engineer
4. Data Engineering & Big Data	Data Engineer, ETL Developer, Big Data Engineer, Database Administrator
5. Cybersecurity & Digital Governance	Cybersecurity Analyst, Data Privacy Associate, Risk & Compliance Analyst

Semester Edge+ Flow Chart

Semester	Focus Areas	Edge+ Components
Semester 1	Foundations of Programming, Mathematics for Data Science, Digital Literacy	Orientation, Boot camp, Outbound Training
Semester 2	Python Programming, Statistics, Database Management	Micro-Credential 1 + Regional Immersion
Semester 3	Data Analytics, Visualization, Applied Machine Learning	Micro-Credential 2
Semester 4	Full Stack Development, Data Engineering	National / Global Immersion
Semester 5	AI Applications, Cloud Computing, Advanced Development	Micro-Credential 3
Semester 6	Capstone Project, Internship, Professional Skills	Industry Internship, Career Prep (Tech Interviews, Certifications)

Industry & Academic Partners

IBM | Coursera |AMYPO

National University of Singapore (NUS)

EM Normandie Business School – France

Eötvös Loránd University – Hungary

Babson College – USA
TUM Asia, Singapore

Taylor's University – Malaysia

Middlesex University – Dubai

IIM Kozhikode

SPJIMR

OP Jindal Global University

IMS

Leap Learning

Breakthrough

Keystone Foundation

Goethe-Zentrum