Course Curriculum and Learning Outcomes

TERM 1:

MODULE NO.	MODULE	TOPICS COVERED
1	Programming for Data Science	1. Introduction to Software and Operating Systems 2. Introduction to Programming 3. Control Structures 4. Functions and Algorithms 5. Complexity 6. File Operations *Hands on assignments will be conducted using programming environment and programming languages Python and R in windows and Linux systems*
2	Statistical Techniques for Data Science	1. Introduction to Statistics 2. Probability 3. Sampling 4. Testing of Hypothesis 5. Simple Correlation 6. Regression *Hands on assignments to be conducted using Excel/R*
3	Data Scrapping and Wrangling	1. Data Scrapping 2. Data Wrangling 3. Introduction to Database Management System *Hands on experience with R and Python*
4	Exploratory Data Analysis	1. Introduction to Data Science 2. Introduction to Data Analysis 3. Descriptive Analysis 4. Data cleansing and transformation 5. Statistical methods applications for dimension reduction *Hands on Data Analysis exercises using R, Python and Excel*

TERM 2:

MODULE NO.	MODULE	TOPICS COVERED
1	Machine Learning	1. Introduction to Machine Learning and Data Science 2. Classification 3. Validation Measures 4. Clustering 5. Recommendation System 6. Customer Analytics 7. Forecasting-Time Series *Hands on practical case study using datasets solved with R*

2	Data Visualization	1. Introduction to Data Visualization 2. Story telling through data 3. Visualization and Communication using Data Visualization tools: Tableau, Qlik-Sense, Excel 4. Dashboards and Automation 5. Visualization Products-Qlik-Sense, R, Tableau, Excel, Python, Power BI
3	Big Data Technologies	1. Motivation for Big Data 2. Getting Started with Hadoop Framework 3. Understanding HBase 4. Analyzing Data with Hive 5. Analyzing Data with Pig 6. Sqoop, oozie, Imapala
4	Elective 1: Principles of Finance / Principles of Marketing	

TERM 3:

MODULE NO.	MODULE	TOPICS COVERED
1	Artificial Intelligence	1. Artificial Intelligence 2. Neural Networks-Backpropagation algorithm and feedforward Networks 3. Deep Learning 4. Deep Learning Models: CNN, RNN, Object Detection, Speech Recognition *All modules are accompanied by programming assignments with sample data*
2	Advanced Big Data Technologies	1. Understanding Spark and Spark programming 2. Real time data stream Analytics 3. Flume
3	Transition to Corporate: Behavioural Skills	Soft-skills topics for Campus to Corporate includes spoken communication, written communication, presentation skills, Team work.
4	Elective 2: Banking Analytics / Marketing Analytics	
5	Elective 3: Unstructured Data Analysis / Linear Programming and Optimisation / Robotic Process Automation	

TERM 4: Internship / Project Work

Industry Projects completed by our students

▸ Influence of international news headlines over stock trends: A sentiment analysis

▸ Conversational chatbots

▸ Analysis of stock market data and prediction of stock Prices

▸ DonorsChoose.org application screening

▸ Data mining approach for studying about sales of different products and studying behaviour of different customers for predicting future sales

▸ Safe driver prediction using machine learning algorithms

▸ Handwritten digit recognition

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ACADEMY *of* HIGHER EDUCATION
Deemed to be University under Section 3 of the UGC Act, 1956

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FACULTY PROFILE

Dr Ramesh Babu,
Ph.D, Computer Sc.
And Engineering,
IIT-Bombay

Dr Ramesh Babu has two decades of professional experience in various positions in Technology, Management, Consulting and Leadership in the IT industry. His functional areas include driving enterprise-wide capacity and capabilities programs.

Mohan Kumar Silaparasetty,
B. Tech (E&ECE),
IIT Kharagpur

Mr Mohan Kumar Silaparasetty has been in the IT industry for more than 25 years. After graduating from IIT - Kharagpur, Mohan worked for SAP and IBM in a variety of leadership roles before embarking on his entrepreneurial journey.

R.N. Prasad,
Senior Analytics
Consultant

Mr R.N. Prasad is a Senior Analytics Consultant helping companies to design and implement innovative decision support and Corporate Performance Management (CPM) Systems.

Dr Gangaboraiah,
Research Methodology
& Statistics

Dr Gangaboraiah has held several positions at the Department of Community Medicine. As a visiting Professor, he has taught Research Methodology and Statistics in various Educational institutions across the country.

INDUSTRY EXPERTS

Sameer Dhanrajani
CSO, Fractal Analytics

Sameer is Chief Strategy Officer at Fractal Analytics. He is responsible for driving strategic investments and inorganic growth, lead high-priority growth initiatives and help Fractal clients on AI-led transformation of their businesses.

Dr Suman Katragadda
Analytics Thought Leader

Mr Suman Katragadda is an analytics thought leader with deep expertise in healthcare payers and providers. He is one of the founding members of health care analytics practice at PwC, US that has consistently been ranked as No.1 for more than three years.

Pankaj Rai
Head of Strategic Planning, Wells Fargo

Mr Pankaj Rai is the Head of Strategic Planning at Wells Fargo's GIC where he is responsible for creating a culture of 3Es (effectiveness, efficiency & experience) in the shared services operations spread out across India and Philippines.

Anand S
CEO Gramener

Anand, the co-founder of Gramener, holds a Bachelor's degree from IIT Madras, and a Master's in Business Administration from IIM Bangalore. He is the recipient of both the Gold Medals from IIM Bangalore in 2001 for exemplary performance.