INDIAN STATISTICAL INSTITUTE
SQC & OR Unit

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Website: www.isipune.ac.in

Hybrid Data Analytics Course
SQC&OR Unit, Indian Statistical Institute, Pune
(Weekend Session)

DURING: Sep-26: 6; 12, 13, 19, 20, 26, 27; **Oct-26:**, 3, 4, 10, 11, 17 **for 12 days (10 am to 4 pm)**

1. PROGRAMME OVERVIEW:

Business leaders and executives are now adapting to the analytics revolution to make decisions with minimal errors and maximum predictability. Gone are the days where we had to grovel for data to guide us in effective decision making. As the volume of data available grows exponentially, there is a pressing need to make sense of the structured and unstructured data available. Organisations are struggling to turn data into value and apply it to discover insights for better decision-making. Focus of the programme is first to illustrate a generalized phenomenon of data analytics and then adopting to all functional areas with examples and case studies such as business, HR, supply chain, retail, operations, sales & marketing, social media, finance, banking, insurance, energy, reliability, services and even for defence services and operations. SQC&OR Unit, Indian Statistical Institute, Pune introduces a knowledge rich, case-study centric, innovative Data Science program for armed forces personnel to be get a grip on data analytics in their discipline and also other discipline across the breadth & depth organisations of any nature and all sizes.

2. OBJECTIVE OF THE PROGRAMME:

The programme will impart training on transferable knowledge & skills of data analytics for fact-based decision-making along with complete data analytics after due diligence of data engineering project for each participant. The modules will be centered around case-study specific examples as well as complete case studies from across functionaries like:

- Product Analytics • Customer Churn Analytics • Market Analytics
- Network Analytics • Operations Analytics • Supply Chain Analytics
- HR Analytics, Energy Analytics • Retail Analytics • Social Media Analytics
- Agro analytics • Insurance Analytics - Actuarial Statistics • Healthcare /Clinical Analytics
- Balance sheet Analytics - To attract total business • Survival Analytics
- Financial Analytics • Risk Analytics • Legal Analytics • Telecom Analytics and the likes

3. PROGRAMME DESIGN:

Entire programme would be deliberated with fundamental concepts and methodologies of data analytics coupled with examples and internship projects for each participant encompassing live **12 days** intensive in-class physical training within 6 months from the start of the programme or 6 week-end (Sat-Sun) hybrid courses between 10:00 am to 4 pm each day. Participants will opt to take up an internship project which would be followed up along with the classroom sessions. The programme has been so designed to highlight:

- Hands on case study centric learning
- Tools Covered- Python and Excel
- Learn from faculty from ISI

4. PROGRAMME METHODOLOGY:

The programme will be conducted from the methodological point of view as fundamental concepts to motivation to deliberations to examples to exercises to internship projects for each participant using tools, group discussions, presentation by the participants.The participants will be able to learn, apply, train, and induct to larger perspective upon completion of the course.

5. QUALIFICATION CRITERIA:

Graduate in preferably science, commerce, engineering, technology and medical background having exposures on MS office and other data analysis and reporting disciplines.

6. COURSE STRUCTURE & SCHEDULE:

Module-1: Data Analytics Motivation of Business
• Evolution of Data Analytics
• Data Analytics for effective business decision making Business Analytics & its component viz basic data preparation | Basic Analytics | Prescriptive Analytics | Descriptive Analytics | Predictive Analytics | Machine Learning | Deep Learning & Artificial Intelligence

Module-2: Functional Analytics:
• Product analytics, Customer Churn Analytics • Market Analytics, Network Analytics • Operations Analytics • Supply Chain Analytics • HR Analytics • Energy Analytics • Retail Analytics • Social Media Analytics • Agro analytics • Insurance Analytics - Actuarial Statistics • Healthcare /Clinical Analytics - Biostatistics • Balance sheet Analytics - To attract total business • Survival Analytics • Financial Analytics • Risk Analytics • Legal Analytics • Telecom Analytics, etc.

Module-3: Prepare Data Set:
• Data Preparation, • Dirty & Unstructured data to Adequate & Clean Data • Data & its types • Metadata • Tuple formation of Data • Data Integration - Aggregation, Segregation, Combining, Indexing, Summarizing • Data Quality • Data & its types

Module-4: Python
• Python Programming • Variables, Data structures & Control flow • Functions, Procedural Approach, Modules, File Handling.

Module-5: Visual Analytics:
• Tools for visual Analytics • Summaries of statistics connecting to Visual analytics using tools such as Python and Excel.

Module-6: Exploratory Data Analysis:
• Events, Probability, random variable, probability distributions • Parameters of probability distribution • Estimation • Sampling distributions, • Test of hypothesis

Module-7: Multivariate Analysis:
• Clustering • Market Basket Analysis • Principal Component Analysis • Factor Analysis • Conjoint analysis

Module-8: Modelling:
• Steps of Modelling
• Data Partitioning in Modeling
• Regression Modelling (Multiple linear regression, Stepwise regression, Best Subset regression, Ridge Regression, LASSO Regression, Spline Regression, Tree based algorithms including ensembling and the likes)
• Classification Modelling (Discriminant Analytics, Logistic Regression, KNN, Naïve Bayes Classifier and the likes)
• Model Adequacy & accuracy parameter, predictability of model, selection of best models and provisioning modelling in machine learning algorithm

Module-9: Times Series Analysis:
• Use of cluster variables & affinity variables in model • Time Series analysis • prescriptive modeling

Module-10: Machine Learning, Deep Learning, Artificial Intelligence & Generative AI in Data Science

Deep Neural Network related modelling • Perceptron - ANN • CNN • RNN • Connecting neural network to Deep learning Modeling and Large Language Modelling

Examinations, Internship project guidance, review, presentation and evaluations for each participant

7. ASSESSMENT & CERTIFICATIONS:

- MCQs (80 Marks) & Descriptive questions (20 Marks). • Open book examination. • Minimum score 70% to receive a certificate.
- As a prerequisite for project follow up, at the end of the project report submission, each participant will have to present the case-study internship project to the panel members

8. PROGRAMME DELIVERY

- Program will take place in hybrid mode with all necessary arrangements during 10:00 am to 4:00 pm every Saturday Sunday
- Soft copy of the training material will be uploaded in the google classroom
- No software package will be provided by the Institute. However, help will be extended to download and use the free tools and temporary free downloadable software installation and use.
- Maximum 20 participants can be accommodated for the programme.

9. ALUMNI STATUS:

The participants will be included to our telegram, WhatsApp and LinkedIn and other social media to enable them interact with the alumni of the unit for knowledge exchange, clarity sessions, annual gathering and placement assistance.

10. COURSE FEE:

Fees per participant- 50,000/- + Applicable GST @18% = **Rs. 59,000/-**

11. MODE OF PAYMENT:

- Drawing a Cheque/DD in favour of **"Indian Statistical Institute" payable at Pune**
- For RTGS or NEFT: **Current account number 11138205207 with State Bank of India, Erandavana Branch; IFSC No. SBIN0004618.**

Contact Details:

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head@isipune.ac.in
query@isipune.ac.in

Mobile: **9371058816**

Participants must visit us on our website home page go to the `Contact us' menu and provide your query details on the `Contact me' menu for the specific program.

Hybrid Certification Program on Data Analytics (Weekend Session)

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REGISTRATION FORM

Name of the Participant (CAPITAL LETTERS):

Communication Address (Mandatory):

E-mail (mandatory) in CAPITAL LETTERS:

Mobile (with WhatsApp):

Organization Name (Optional):

Position (Optional):

Highest academic qualification:

Course Fees:
Fees per participant- 50,000/- + Applicable GST @18% = **Rs. 59,000/-**

Bank Details:	**For Online Payments**
Bank Name:	STATE BANK OF INDIA
Account Name:	Indian Statistical Institute
Account Type:	Current
Bank Account No:	**11138205207**
Branch:	ERANDWANE(04618)
Bank Address:	Karve Rd, Pandurang Colony, Erandwane, Pune, Maharashtra 411004
IFSC code:	**SBIN0004618**

Amount Paid: _____ Date: _____

Bank: _____ Payment Ref. No._____

Signature: _____

Name: _____ Date: _____

Please send the filled-in form to: head@isipune.ac.in
accounts@isipune.ac.in

Registration will be confirmed only on receipt of the filled-in form (attached) and course fees.
Note: Fee once paid will be fully refunded if ISI cancels the program only.