Indian Institute of Management Calcutta
Long Duration Programme

Executive Programme on Business Analytics [EPBA 2013]

Introduction

Business Analytics is about quantitative analysis and predictive modelling towards data-driven competitive strategies. Exemplars of analytics are using tools to identify their most profitable customers; offer the right price; accelerate product innovation; optimize supply chains; identifying the true drivers of financial performance etc. Organizations as diverse as HSBC, PepsiCo, Amazon, Barclay's, Capital One, Procter & Gamble, illuminate how to leverage the power of analytics. Competence in analytics has become a critical skill for managers of the new age business organisations.

Outline of Courses

Business Analytics for Competitive Advantage

This course will cover how to strategically use analytics across business functions of an organization to drive effective decision making. The coverage plan of this course is as follows:

- The need for using analytics in organizations for achieving sustainable competitive advantage
- Leveraging data from within and outside organizations to generate insights for better operational and financial results
- Best practices in business analytics adopted by global firms for recognizing opportunities and mitigating risks

Mathematics for Business Analytics

This course will cover mathematical techniques that would be necessary to effectively participate in different classes on business analytics. The coverage plan of this course is as follows:

- Induction principles, Sets
- Matrix and determinant, Permutation and Combination
- Differential Calculus – function, limit, continuity, derivative, maxima, minima
- Integral Calculus – indefinite integrals, definite integrals, computation of length, area, volume

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Statistics for Business Analytics

The course aims at developing capability of formulating model for decision making based on Statistics. Coverage plan of this module will be:

- Uncertainty and Randomness
- Probability Distributions and their applications: Modeling real data
- Sampling Theory
- Elements of Statistical Inference

Spreadsheet Modeling

The course aims at developing capability of formulating model of decision making situation using Microsoft Excel functionality. Coverage plan of this module will be:

- Model formulation using Influence diagram
- Spreadsheet Engineering
- Excel functions needed for model building
- Excel features to create sensitivity results
- Presentation of model outputs using executive dashboards

Business Data Mining

The course is aimed at helping students understand and appreciate the role of Data Mining for Business decisions and also the use of Data Warehousing for decision support in the broader context of making organizations smarter and intelligent in decision making.

- Knowledge discovery from data
- Association rules
- Classification
- Clustering
- Data warehousing & OLAP

Time Series Models in Business

This course introduces fundamental concepts of time series analysis. No prior knowledge of time series analysis is necessary. However, a basic understanding of probability and statistical inference is assumed. This course is a blend of basic theory of times series models and its applications. Although the proceedings will primarily consider applications in the areas of economics and finance, the modelling approach is quite general, and can be easily extended to applications in other areas. Module wise coverage of the course will be:

- Review of Regression Models
- Stationary Time Series
- Time Domain ARIMA Models
- Financial Time Series

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Business Intelligence

The purpose of this course is to present the tools and techniques that broadly grouped under 'Business Intelligence'. Some of the topics that will be covered are:

- Data Warehouse
- Business Performance Management
- Balanced Scorecard and Dashboard

Marketing Analytics

Marketing decision making and understanding the consumer behavior are complex phenomena which pose serious challenges to the analyst in applying quantitative techniques. The objective of this course would be to expose the students to the concepts of data analytics as they are applied in a number of marketing contexts such as

- Market Research
- Customer Segmentation
- Direct Marketing
- Customer Relationship Management
- Customer retention and churn

Financial Analytics

In this course exposure is given to tools and techniques that can be used to increase a company's financial productivity, specifically its profitability. Some of the following topics would be covered in the course.

- Valuation Analytics
- Fixed Income Analytics
- Investment Analytics
- Trading Analytics
- Financial Risk Analytics

Operations and Supply Chain Analytics

Business analytics can play a significant role in driving operational excellence. Organizations focused on operational excellence need to apply analytic technologies for managing and improving the decisions that drive their operations. The course plans to look at some of these topics:

- Optimization Analytics
- Supply Chain Analytics
- Pricing Analytics

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