Certified Predictive Modeler (CPM)

Course Outline

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DURATION

32 Hours (4 Days) Classroom Training

COURSE OBJECTIVES

Predictive analytics is a branch of advanced analytics which is used to make predictions about unknown future events. It uses many techniques from data mining, statistics, modeling, machine learning and artificial intelligence to historical and current data to make predictions about the future. Predictive analytics helps organizations predict with confidence what will happen next so that we can make smarter decisions and improve business outcomes. With predictive analytics we can transform data into predictive insights to guide front-line decisions and interactions, predict what customers want and will do next to increase profitability and retention, maximize the productivity of people, processes and assets, and detect and prevent threats and fraud before they affect organizations.

This specialized course covers the concept of business analytics with more focus on predictive analytics and its importance to any business organization. The course deals with basic principles, concepts, techniques and tools (RapidMiner) used in business analytics landscape. Also, this course covers different types of business analytics with real life use cases. Participants will understand the concept of data mining and analytics through an open source analytical tool. Participants will learn to use the tool for operations like data loading, data cleaning/preparation and building predictive models for a given business data. Through this course participants will acquire knowledge on how to use business analytics strategically in organization and to get the most benefit out of it.

JOB ROLES IN NICF / TARGETED AUDIENCE

- Business Analyst
- Data Analyst - Statistics and Mining
- Data Analyst - Text Analytics
- Research Analyst
- IHL students

COMPETENCY UNITS

- Collect and validate data

- Analyse data and generate reports

- Develop statistical model

- Model data processes_Reviewed

PRE-REQUISITES

Participants are preferred to have some experience in software development, business domain or data/business analysis.

PROGRAM STRUCTURE

This is a 4-day intensive training program with the following assessment components.

     Component 1.   Written Examination (MCQ)

     Component 2.   Project Work Component (PWC)

These components are individual based. Participants will need to obtain 70% in both the components in order to qualify for this certification. If the participant fails one of the components, they will not pass the course and have to re-take that particular failed component. If they fail both components, they will have to re-take the assessment.

COURSE OUTCOMES

- Understand business analytics, different types and its impact on enterprises

- Understand the role of predictive analytics and its importance in industry

- Learn to apply data loading, data preparation and cleaning techniques

- Learn to apply the data mining techniques using an open source tool

- Acquire knowledge on predictive modeling with regression, rule induction, decision tree and neural network

COURSE SESSION SCHEDULE

Day 1	Session 1 (9:00 – 10:30)	Session 2 (10:40 – 12:10)	Session 3 (13:10 – 16:10)		Session 4 (16:10 – 18:10)
	Introduction to Business Analytics	Introduction to Business Analytics	Various Types of Analytics		Predictive Analytics
Day 2	Session 1 (9:00 – 10:00)	Session 2 (10.10 – 12:10)	Session 3 (13.10 – 14:10)	Session 4 (14:10 – 17:10)	Session 5 (17:10 – 18:40)
	Predictive Analytics	Data Mining and Analytics	Data Mining and Analytics	Data Mining Tool: RapidMiner	Data Preparation and Cleaning
Day 3	Session 1 (9:00 – 10:30)	Session 2 (10:40 – 12:40)	Session 3 (13:40 – 14:10)	Session 4 (14:10 – 16:10)	Session 5 (16:10 – 18:10)
	Data Preparation and Cleaning	Data Mining Techniques	Data Mining Techniques	Introduction to Predictive Modeling with Regression	Introduction to Predictive Modeling with Rule Induction
Day 4	Session 1 (9:00 – 10:30)	Session 2 (10:40 – 12:10)	Session 3 (13:10 – 15:10)		Session 4 (15:10 – 17:40)
	Introduction to Predictive Modeling with Decision Tree	Introduction to Predictive Modeling with Decision Tree	Introduction to Predictive Modeling with Neural Network		CPM examination

COURSE OUTLINE

Unit 1: Introduction to Business Analytics

- What is Business Analytics?

- Analytics and its perception

- The concept of DIKW

- AS IS situation of organization

- Benefits of analytics

Unit 2: Types of Analytics

- Various type of analytics
  - Descriptive Analytics
  - Predictive Analytics
  - Prescriptive Analytics

Unit 3: Predictive Analytics

- Understanding Predictive Analytics

- 4 Core Techniques of Predictive Analytics

- Predictive Analytics Providers

- Predictive Analytics Project Phases

- Use cases

Unit 4: Data Mining and Analytics

- Trends leading to Data Flood

- Database Processing vs. Data Mining Processing

- Data Mining – Big Picture

- Goals of Data Mining

- Basic Data Mining Tasks

- Data Mining vs. KDD

- Data Mining Process - Big Picture

- Data Mining – Business Case Studies

Unit 5: Data Mining Tool – RapidMiner

- Introduction to RapidMiner

- Exploring RapidMiner framework

- Features of RapidMiner

Unit 6: Data Preparation and Cleaning

- Understand the process of data preparation

- Data cleaning and its importance

- Data cleaning techniques

Unit 7: Data Mining Techniques

- Types of data mining techniques
    - Statistical Models
    - Supervised Machine Learning Models
    - Unsupervised Machine Learning Models

Unit 8: Introduction to Predictive Modeling with Regression

- Introduction to Regression

- Regression Models
    - Linear Regression
    - Logistic Regression
- Case studies
- Hands-on

Unit 9: Introduction to Predictive Modeling with Rule Induction

- Introduction to Rule Induction

- Case study

- Hands-on

Unit 10: Introduction to Predictive Modeling with Decision Tree

- Introduction to Decision Tree

- Case study

- Hands-on

Unit 11: Introduction to Predictive Modeling with Neural Network

- Introduction to Neural Network

- Case study

- Hands-on

HANDS-ON

Participants will also be exposed to various software tools in the market for analytics and would be having hands-on session on RapidMiner tool. The course would be ideal for professionals/executives to gain an insight on the predictive analytics, how to align to the business vision and get the value out of it.

WRITTEN ASSESSMENT

As part of the written examination, each participant will be assessed individually on the last day of the training for their understanding of the subject matter and ability to evaluate, choose and apply them in specific context and also the ability to identify and manage risks. The assessment focuses on higher levels of learning in Bloom's taxonomy: Application, Analysis, Synthesis and Evaluation. This written examination will primarily consist of 40 multiple choice questions spanning various aspects as covered in the program. It is an individual, competency-based assessment.

EXAM PREPARATION

The objective of the certification examination is to evaluate the knowledge and skills acquired by the participants during the course. The weightage in key topics of the course as follows:

- **Introduction to Business Analytics [10%]**

- **Types of Analytics [10%]**

- **Predictive Analytics [20%]**

- **Data Mining and Analytics [10%]**

- **Data Mining Tool – RapidMiner [10%]**

- **Data Preparation and Cleaning [5%]**

- **Data Mining Techniques [15%]**

- **Introduction to Predictive Modeling with Regression [5%]**

- **Introduction to Predictive Modeling with Rule Induction [5%]**

- **Introduction to Predictive Modeling with Decision Tree [5%]**

- **Introduction to Predictive Modeling with Neural Network [5%]**

TOOLS/SOFTWARE USED

- MongoDB
- RapidMiner