MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB
(Formerly West Bengal University of Technology)
Syllabus of BBA in Business Analytics
(Effective from 2023-2024 Academic Sessions)

Semester-IV

Course Name: Predictive Analytics

Mode: Offline   **Credits: 4 [BBA (BA) – 401]**

Subject Code: BBA (BA) – 401   **60 Hours**

Aim of the course:

This course provides the outline and procedures for students to use certain statistical and predictive analysis techniques that are relevant to real-world situations. It helps students to assess the suitability and reliability of the models, and be able to decipher and present the findings for a management audience. This in turn shall inculcate the ability to utilise predictive analysis tools such as Univariate, Bivariate, and Multivariate to solve problems and analyse the effectiveness of various classification challenges to obtain practical, business-related answers; a requisite for data analyst.

Course Objectives:
1. This course will build ability among students to understand and apply specific statistical and predictive analysis methods applicable to real life scenario
2. Students will develop familiarity with popular tools and techniques used in industry for predictive analytics
3. They will learn how to evaluate the appropriateness and validity of models and how to interpret and report the results for a management audience

Sl No.	Graduate Attributes	Mapped Modules
CO1	Remembering	M1, M2, M3, M4, M5, M6, M7, M8
CO2	Understanding the course	M1, M2, M3, M4, M5, M6, M7, M8
CO3	Applying the general problems	M2, M3, M4, M5, M6, M7, M8
CO4	Analyse the problems	M3, M4, M5, M6, M7, M8
CO5	Evaluate the problems after analysing.	M6, M7, M8
CO6	Create using the evaluation process	

Learning Outcome/Skills:

After the completion of this course the students will be able to

1. Apply specific statistical and predictive analysis methods applicable to real life scenario.

2. Evaluate the appropriateness and validity of models and able to interpret and report the results for a management audience.

3. Apply Univariate, Bivariate and Multivariate predictive analytical techniques to solve problems.

4. Evaluate the effectiveness of various classification problems to gain effective real life and business-related solutions.

Module Number	Content	Total Hours	%age of questions	Bloom's Level (applicable)	Remarks Ifany
M 1	**Introduction to Analytics**	5	5	L1, L2	
M 2	**Types, Techniques & Applications of**	6	10	L1, L2, L3	

	Predictive Analytics				
M 3	**Simple Linear Regression (SLR)**	7	10	L1, L2, L3, L4	
M 4	**Multiple Linear Regression (MLR)**	8	15	L1, L2, L3, L4	
M 5	**Logistic Regression**	8	15	L1, L2, L3, L4	
M 6	**Introduction to Decision Trees**	10	15	L1, L2, L3, L4, L5	
M 7	**Introduction to Unstructured data analysis and other classifiers**	8	15	L1, L2, L3, L4, L5	
M 8	**Introduction to Forecasting and Time series Analysis**	8	15	L1, L2, L3, L4, L5	
	Total	60	100		

Detailed Syllabus:

Module 1 : Introduction to Analytics:

Overview, Definition, Need, Analytics in decision making, Game changer and innovator, Power of analytics, Predictive Analytics.

Total Hours: 5

Module 2 : Types, Techniques & Applications of Predictive Analytics:

Types, techniques and applications of Predictive Analytics, Application of Predictive Analytics in Manufacturing, Health, Telecommunication, Supply Chain, Information Technology etc. Digital Analytics.

Total Hours: 6

Module 3: Simple Linear Regression (SLR):

Introduction, Overview, Importance, Types, SLR: Model Building, OLS Estimation, Model interpretation, validation.

Total Hours: 7

Module 4: Multiple Linear Regression:

Multiple Linear Regression, Estimation of Regression Parameters, Model Diagnostics, Introduction to Dummy, Derived & Interaction Variables, Multi-collinearity, Model Deployment, Demo using software.

Total Hours: 8

Module 5 : Logistic Regression:

Discrete choice models, Logistic Regression, Logistic Model Interpretation, Logistic Model Diagnostics, Logistic Model Deployment, Demo using software.

Total Hours: 8

Module 6 : Introduction to Decision Trees: Overview, Application, Terminologies,Model validation, Introduction to Chi-Square Automatic Interaction Detectors (CHAID), Classification and Regression Tree (CART). **Total Hours: 10**
Module 7 : Introduction to Unstructured data analysis and other classifiers: Introduction to Unstructured data analysis and other classifiers: Sentiment Analysis, Naïve Bayes algorithm. **Total Hours: 8**
Module 8 : Introduction to Forecasting and Time series Analysis: Forecasting, Time Series Analysis, Additive & Multiplicative models, Forecasting Accuracy, Moving average models, Exponential smoothing techniques. **Total Hours: 8**

Suggested Readings:

1. Eric Siegel: Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die, Wiley.

2. Bari: Predictive Analytics for Dummies, Wiley.

3. Dr. Anasse Bari, Mohamed Chaouchi: Predictive Analytics for Dummies , John Wiley & Sons.

4. NamakumR N Prasad , Seema Acharya : Fundamentals of Business Analytics, Wiley.

5. Alvaro Fuentes: Hands-On Predictive Analytics with Python: Master the complete predictive analytics process, from problem definition to model deployment,Ingram short title.

6. Stephen Sorger. Marketing Analytics - Strategic Models and Metrics, Amazon Digital Services.

Course Name: Customer Relationship Management

Mode: Offline   Credits: 4 (3L+1T)

Subject Code: BBA (BA) – 402   60 Hours

Course Aims:

1. To demonstrate the concepts, terms, types, and benefits of Customer Relationship Management (CRM).

2. To illustrate how CRM creates value for organizations and customers.

Course Objectives:

1. To build an introductory understanding of tools and techniques useful in implementing customer relationship management.

2. To evaluate the success of CRM implementations.

3. To formulate a preliminary understanding of how analytics intersects with the domain of customer relationship management

Sl	Course Outcome	Mapped modules
CO1	Remembering	M1, M2, M3, M4, M5, M6, M7, M8
CO2	Understanding the course	M1, M2, M3, M4, M5, M6, M7, M8
CO3	Applying the general problem	M5, M6, M7
CO4	Analyse the problems	M5, M6, M7
CO5	Evaluate the problems after analysing	M5, M6, M7

Module Number	Content	Total Hours	%age of questions	Bloom's Level (if applicable)	Remarks (If any)
M 1	Introduction to CRM	6	5	L1, L2	
M 2	Understanding Relationship	8	5	L1, L2	
M 3	Managing Customer Lifecycle	8	15	L1, L2,	
M 4	Types of CRM	8	15	L1, L2	
M 5	Strategic CRM	8	15	L1, L2,L3,L4, L5	
M 6	Operational CRM	8	15	L1, L2, L3,L4, L5	
M 7	Analytical CRM	8	15	L1, L2,L3, L4, L5	
M 8	Realizing Benefits of CRM and Looking in to future.	6	15	L1, L2	
		60	**100**		

Sl.	Topic/Module	Hour
1.	**Module 1:Introduction to CRM:** Definition, Components, Models, Contexts.	6
2.	**Module 2: Understanding Relationship**: Relationship, loyalty, Relationship quality, Customer lifetime value, Customer Satisfaction.	8
3.	**Module 3: Managing Customer Lifecycle:** Customer acquisition, customer retention, Introduction to Customer Life-time Value, calculation.	8
4.	**Module 4: Types of CRM:** Types, Difference, Sub components of each type.	8
5.	**Module 5: Strategic CRM**: Customer Portfolio Management, Delivering customer-experienced value, CRM metrics.	8
6.	**Module 6: Operational CRM**: Introduction to Sales Force Automation, Marketing Automation, Service Automation, CRM metrics.	8
7.	**Module 7: Analytical CRM:** Customer-related databases, Development and managing customer-related databases, CRM metrics.	8
8.	**Module 8: Realizing Benefits of CRM and Looking in to future:** Implementing CRM, Social CRM, Collaborative CRM, e-CRM.	6

Suggested Readings:

1. Francis Buttle: Customer Relationship Management: Concepts and Tools, Routledge.
2. Francis & Stan Maklan Buttle: Customer Relationship Management : Concepts andTechnologies, T&F India
3. Jagdish N Sheth, Parvatiyar Atul, et al. Customer Relationship Management:Emerging Concepts, Tools and Applications, McGraw Hill Education.
4. Dr. Ruchi Jain and Dr. Ruchika Jeswal: CRM Customer Relationship Management: aconceptual approach, Galgotia Publishing Company.
5. Lars Helgeson: CRM for Dummies, Wiley.
6. Payne : Strategic Customer Management: Integrating Relationship Marketing andCRM, Cambridge University Press.

Course Name: Marketing Management and Metrics

Mode: Offline   **Credits: 5 (4L+1T)**

Subject Code: BBA (BA) – 403   **60 Hours**

Aim of the course: This course aims to prepare students how to solve real life marketing problems using various mathematical formulas. Starting from the very foundations of marketing, and using spreadsheets for analysis to tackle real life marketing problems Students are made industry ready to face marketing challenges they may face later on their corporate lives.

Course Objectives: On successful completion of the course, students shall be having a deep understanding of the different models used in marketing metrics. Students shall be capable of developing and applying the appropriate marketing metric tool required to assess a marketing situation and take proactive and reactive managerial decisions required to enhance profitability from a marketing point of view. Students shall also be able to analyze situations from customer point of view, and learn about the art of customer retention and customer addition from the organization point of view under different market contexts.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2, M3, M4, M5, M6, M7, M8, M9
2	Understanding the course	M1, M2, M3, M4, M5, M6, M7, M8, M9
3	Applying the general problem	M6, M7, M8, M9
4	Analyse the problems	M6, M7, M8, M9
5	Evaluate the problems after analysing	M6, M7, M8, M9
6	Create using the evaluation process	

Sl No.	Graduate attributes	Mapped Modules
CO1	Students will acquire knowledge of Basic Concepts of Marketing Metrics	M1, M2, M3, M4, M5, M6
CO2	Students shall understand the Fundamentals of Marketing along with the different aspects of Marketing Metrics	M1, M2, M3, M4, M5, M6
CO3	Students will understand the different Types of Marketing Metrics from various perspective and apply them in present day marketing applications	M7, M8
CO4	Students will learn about Marketing Metrics, and learn how to apply Marketing Metrics in today's market	M7, M8
CO5	Students shall understand various Measurement Tools used in Marketing Metrics and learn how to implement these in pertaining contexts.	M7, M8, M9
CO6	Students shall evaluate the Effectiveness of various, analytical Tools & Techniques used in Marketing Metrics	M2, M3, M4,M5,M6, M7, M8, M9
CO7	The students will create the knowledge base on various horizons of Business Research Academics, and develop the designs required for Practical Application.	M2, M3, M4,M5,M6
CO8	Students shall appraise from the perspective of Constructive Assessment and originate as per Contemporary Obligation pertaining to the Academics as well as in the Professional Field.	M1, M3, M4,M5,M6, M7, M8

Learning Outcome/Skills: This course will help students develop a more quantitative approach to developing, implementing and evaluating marketing plans and associated activities. This course will also assist students with using the appropriate metrics to assess the efficiency and effectiveness of their company's marketing strategies and tactics. Since this course involves both the fundamentals of marketing and the associated marketing metric models, through this, students shall be the critical importance of measuring and evaluating marketing activities, expenditure and its payback.

Module Number	Content	Total Hours	% of questions	Bloom's Level
M 1	**Introduction to Marketing**	10	20%	L1, L2,
M 2	**Market Segmentation Targeting & Positioning (STP)**	5	10%	L1, L2,
M 3	**Concepts of Product**	5	10%	L1, L2
M 4	**Pricing**	5	10%	L1, L2
M 5	**Introduction to distribution channels, Sales Promotion and Integrated Marketing Communication**	5	10%	L1, L2
M 6	**Introduction to Marketing Analytics**	10	15%	L1, L2, L3, L4, L5, L6
M 7	**Marketing Metrics modelling techniques**	8	10%	L1, L2, L3, L4, L5, L6
M 8	**Non-Linear Pricing**	7	7.5%	L1, L2, L3, L4, L5, L6
M 9	**Advertisement and Internet Marketing Metrics**	5	7.5%	L1, L2, L3, L4, L5, L6
		60	**100**	

Detailed Syllabus:

Sl.	Topic/Module	Hour
1.	Module 1: **Introduction to Marketing** –Definition, Scope, Marketing Concepts-Traditional and Modern; Selling vs. Marketing; Functions andEvaluation of Marketing. Marketing Environment, Macro and Micro Environment, SWOT Analysis, Marketing Mix, Marketing Information System. Consumer Behavior- Meaning, Determinants- Cultural, Social, Personal,Psychological Industrial Buying Behavior-Meaning, Characteristics; Differences Between Consumer Buying and Industrial Buying Behavior	10
2.	Module 2: **Market Segmentation Targeting & Positioning (STP)** - Meaning, Benefits of Market Segmentation, Basis of Segmentation; TargetMarket; Introduction to segmentation techniques. Branding- Definition, Importance, Branding Strategy; Packaging	5
3.	Module 3: **Concepts of Products**, Product Mix, Product Line, Product Width, Depth; Product Life Cycle Meaning and Stages, Strategies Involvedin PLC Stages, New Product Development- Steps	5
4.	Module 4: **Pricing-** Meaning, Importance of Price in the Marketing Mix, Objectives and Methods of Pricing, Factors Affecting Price of a Product/Service, Discounts and Rebates,	5
5.	Module 5: **Introduction to distribution channels, Sales Promotion and Integrated Marketing Communication:** Meaning & Types of distribution, direct vs indirect, role of intermediaries in distribution Promotion & Promotional Mix, Advertising, Media, Sales Promotion, Integrated Marketing Communications.	5
6	Module 6: **Introduction to Marketing Analytics**: Importance of Marketing Analytics, summarizing data using software (Excel) functions and formulae such as AVERAGE, MEAN, MEDIAN STDDEV, RANK, PERCENTILE, PERCENTRANK, PERCENTILE.EXC, PERCENTILE.EXC, TRANSPOSE, SKEWNESS, LARGE, SMALL, COUNTIF, RANK, SUMIFS, COUNTIFS, AVERAGEIF, AVERAGEIFS, to summarize and analyze Sales / Marketing data. Using Pivot Tables in Marketing Metrics, using Excel Solver for Demand and price estimation, Forecasting: forecasting sales, demand and price estimation, using Excel Solver	10
7.	Module 7: **Marketing Metrics modelling techniques:** RFM, CLV, MBA, LIFT	8
8.	Module 8: **Non-Linear Pricing**: Non-Linear Pricing Decision Making, Price Bundling, Price Skimming, Revenue Maximization	7

9.	Module 9: **Advertisement and Internet Marketing Metrics**: Advertisement Analytics, online ad effectiveness, Internet and social media Marketing, App Marketing metrics	5`

Suggested Readings:

1. Kotler Philip and Armstrong Gary: Principles of Marketing, Pearson.

2. Arun Kumar: Marketing Management, Vikas Publishing House.

3. Wayne L. Winston: Marketing Analytics Data Driven Techniques with Microsoft Excel, Willey.

4. Paul W. Farris, Neil Bendle, Philip Pfeifer: Marketing Metrics: The Definitive Guide to Measuring Performance, Pearson