MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB
Syllabus of BBA in Business Analytics
(Effective for 2021-2022 Admission Session)
Choice Based Credit System
140 Credit (3-Year UG)

Course: Predictive Analytics

Code: BBA(BA) 401

Course Objective:

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

Module Number	Content	Total Hours	%age of questions	Bloom's Level (if applicable)	Remarks (If any)
M 1	Introduction to Analytics	5	5	L1, L2	
M 2	Types and techniques of Predictive Analytics	5	5	L1, L2	
M 3	Simple Linear Regression (SLR)	8	15	L1, L2, L3, L4, L5	
M 4	Multiple Linear Regression	8	15	L1, L2, L3, L4, L5	
M 5	Logistic Regression	8	15	L1, L2, L3, L4, L5	
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	8	15	L1, L2, L3, L4, L5	

	series Analysis				
		60	**100**		

Paper Code: BBA(BA) - 401

Predictive Analytics

Total Credit: 6

Total hours of lectures: 60 hours

Sl.	Topic/Module	Hour
1.	Module 1: Introduction to Analytics: Overview, Definition, Need, Analytics in decision making, Game changer and innovator, Power of analytics, Predictive Analytics.	5
2.	Module 2: Types and techniques of Predictive Analytics, Application of Predictive Analytics in Manufacturing, Health, Telecommunication, Supply Chain, Information Technology etc. Digital Analytics.	5
3.	Module 3: Simple Linear Regression (SLR): Introduction, Overview, Importance, Types, SLR: Model Building, OLS Estimation, Model interpretation, validation.	8
4.	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.	8
5.	Module 5: Logistic Regression: Discrete choice models, Logistic Regression, Logistic Model Interpretation, Logistic Model Diagnostics, Logistic Model Deployment, Demo using software.	8
6.	Module 6: Introduction to Decision Trees: Overview, Application, Terminologies, Model validation, Introduction to Chi-Square Automatic Interaction Detectors (CHAID), Classification and Regression Tree (CART).	10
7.	Module 7: Introduction to Unstructured data analysis and other classifiers: Sentiment Analysis, Naïve Bayes algorithm.	8

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.	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. Namakum R N Prasad (Author), Seema Acharya (Author): 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: Supply Chain Management

Code: BBA(BA) 402

Course Objective:

4. This course will demonstrate primary differences between logistics and supply chain management.
5. Students will be familiar with the concepts, framework, managing components of supply chain management.
6. Student will build an introductory understanding about tools and techniques useful in implementing supply chain management.
7. A preliminary level of understanding will be formulated among students regarding supply chain analytics.

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

Module Number	Content	Total Hours	%age of questions	Bloom's Level (if applicable)	Remarks (If any)
M 1	Concept of logistics	10	5	L1, L2	
M 2	Integrated logistics	10	5	L1, L2	
M 3	Introduction to Supply Chain	10	15	L1, L2,	
M 4	Supply Chain Effectiveness	8	15	L1, L2, L3, L4 , L5	
M 5	Sourcing strategy	6	15	L1, L2, L4, L5	
M 6	Demand Forecasting	8	15	L1, L2, L3, L4, L5	
M 7	Supply Chain Management from Indian Perspective	2	15	L1, L2, L6	
M 8	Introduction to Supply Chain Analytics	6	15	L1, L2, L6	
		60	**100**		

Paper Code: BBA(BA) - 402

Supply Chain Management

Total Credit: 6

Total hours of lectures: 60 hours

Sl.	Topic/Module	Hour
1.	Module 1: Concept of logistics: Introduction, Objective, Types, Concept of Logistic Management, Evolution, Role of logistics in economy, Difference between logistics and supply chain, Logistics and Supply Chain Management, Logistic mix, Logistics and competitive advantage.	10
2.	Module 2: Integrated logistics: Introduction, Objective, Concept of Integrated Logistics, Information flow, Inventory flow, Inventory Ownership, Measurement system, Barriers, Logistics Performance Cycle, Procurement Performance Cycle.	10
3.	Module 3: Introduction to Supply Chain: Introduction, Objective, Concept, Defining Value Chain, Organisation Level Activities, Industry level, Value Reference Model, Functions, Contributions, Creating Value, Leveraging Value Chain Partners.	10
4.	Module 4: Framework for Supply Chain Management, Supply Chain Effectiveness, Supply Chain Relationship, Building long-Term Relationship with Vendors.	8
5.	Module 5: Sourcing strategy: Manufacturing management, Make or buy decision, Capacity management, Materials Management, Choice of sources, Procurement planning.	6
6.	Module 6: Demand Forecasting: Introduction, Objective, Concept and impact of Demand Forecasting, Forecasting Process and Techniques.	8
7.	Module 7: Supply Chain Management from Indian Perspective.	2
8.	Module 8: Introduction to Supply Chain Analytics: Introduction to Tools and Techniques (Inventory Management Decisions-Multi-item, Deterministic Constraint Models & probabilistic Models, AHP Applications, optimization for SCM support etc.).	6

Suggested Readings:

1. Sunil Chopra: Supply Chain Management, Pearson Prentice Hall.
2. Sunil Chopra, Peter Meindl, D.V. Kalra: Supply Chain Management, Pearson.
3. Michael Hugos: Essentials of Supply Chain Management, Wiley.
4. Richard B, Ravi Shankar, F. Robert Jacobs: Operations and Supply Chain Management, McGraw Hill Education.
5. James Stevens: Supply Chain Management: Strategy, Operation & Planning for Logistics Management, Createspace Independent Pub.
6. Ashley McDonough: Operations and Supply Chain Management Essentials You Always Wanted to Know, Vibrant Publishers.

Course: Customer Relationship Management

Code: BBA(BA) 403

Course Objective:

8. This course will demonstrate the concepts, terms, Types benefits of CRM, how CRM creates value for organizations and customers.

9. Student will build an introductory understanding about tools and techniques useful in implementing customer relationship management along with how to evaluate the successfulness.
10. A preliminary level of understanding will be formulated among students how the domain of analytics intersects with customer relationship management domain.

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

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**		

Customer Relationship Management

Paper Code: BBA (BA) - 403

Total Credit: 6

Total hours of lectures: 60 hours

Sl.	Topic/Module	Hour
1.	**Module 1: Introduction to CRM:** Definition, Components, Models,	6

	Contexts.	
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, Subcomponents 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 and Technologies, 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: a conceptual approach, Galgotia Publishing Company.
5. Lars Helgeson: CRM for Dummies, Wiley.
6. Payne : Strategic Customer Management: Integrating Relationship Marketing and CRM, Cambridge University Press.

Course: Data Analysis Lab using R

Code: BBA (BA) 405

Course Objective:

1. This course will help students to learn basic operations, functions, packages in R.
2. Students will be familiar how R can be used in analytical and data mining related problems.
3. They will get motivation to use R as a data-analytics and visualization tool.

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

Module Number	Content	Total Hours	%age of questions	Bloom's Level (if applicable)	Remarks (If any)
M 1	What is R? Basic Operations in R.	1P		L2, L4, L5, L6	
M 2	Data Types & Data Structures, Subsetting in R	2P		L2, L4, L5, L6	
M 3	Data Import & Export.	1P		L2, L4, L5, L6	
M 4	Introduction to R Packages.	1P		L2, L4, L5, L6	
M 5	Control Structures & User Defined Functions.	2P		L2, L4, L5, L6	
M 6	Introduction to Statistical Analysis & Data Mining.	3P		L2, L4, L5, L6	
		10P	**100**		

Paper Code: BBA(BA) - 405

Data Analysis Lab using R

Total Credit: 2

Total hours of lectures: 40 hours

Sl.	Topic/Module	Hour
1.	Module 1: What is R? Basic Operations in R.	5
2.	Module 2: Data Types & Data Structures in R. Subsetting in R	5
3.	Module 3: Data Import & Export.	5
4.	Module 4: Introduction to R Packages.	5
5.	Module 5: Control Structures & User Defined Functions.	10
6.	Module 6: Introduction to Statistical Analysis & Data Mining.	10

Suggested Readings:

7. Dr. Mark Gardener: Beginning R: The Statistical Programming Language, Wiley.
8. Jeeva Jose: Beginners Guide for Data Analysis using R Programming, Khanna Publishing.
9. Sandip Rakshit: Statistics with R Programming, McGraw Hill Education.
10. Sandip Rakshit: R Programming for Beginners, McGraw Hill Education.
11. Andrie de Vries , Joris Meys: R Programming for Dummies, Wiley.
12. Jared P. Lander: R for Everyone: Advanced Analytics and Graphics, Pearson Education.