

Course Name: Master of Business Administration (Business Analytics) Semester 3

Sr. No.	Subject Code	Name of Subject	Hrs/Week	Course Type	Credit	Examination Scheme						
						Duration of Exam Hours	External		Internal		Total Max Marks	Min. Agg. Marks
							Max Marks	Min. Pass Marks	Max Marks	Min. Pass Marks		
1	MBA/301/BA	Pricing Analytics	4	DSC	4	3	70	35	30	15	100	350
2	MBA/302/BA	Business Econometrics	4	DSC	4	3	70	35	30	15	100	
3	MBA/303/BA	Applied Data Analytics	4	DSC	4	3	70	35	30	15	100	
4	MBA/304/BA	Big Data Analytics	4	DSC	4	3	70	35	30	15	100	
5	MBA/305/BA / MBA/306/BA	Supply chain analytics / E-Commerce Analytics	4	DSE	4	3	70	35	30	15	100	
6	MBA/307/BA	Retail Analytics	4	DSC	4	3	70	35	30	15	100	
7	MBA/308	UHV 1	4	DSC	4	Internal Assessment				100		
Total			28		28					700	350	

SEMESTER III
MBA IN BUSINESS ANALYTICS

Sr. No.	Subject Code	Name of Subject	Course Type
1	MBA/301/BA	Pricing Analytics	DSC
2	MBA/302/BA	Business Econometrics	DSC
3	MBA/303/BA	Applied Data Analytics	DSC
4	MBA/304/BA	Big Data Analytics	DSC
5	MBA/305/BA / MBA/306/BA	Supply chain analytics/E-Commerce Analytics	DSE
6	MBA/307/BA	Retail Analytics	DSC
7	MBA/308	UHV 1	DSC

MBA/301/BA

PRICING ANALYTICS

COURSE OUTCOMES: After completion of this course the students will be able to

CO	COURSE OUTCOMES
1	Understand the key principles of pricing strategies.
2	Analyse market data and customer behaviour to determine optimal prices.
3	Utilize data analytics tools and techniques to set and adjust pricing.
4	Evaluate the impact of pricing decisions on business profitability.
5	Apply pricing analytics in real-world business scenarios.

Unit 1: - Introduction to Pricing Analytics - Data sources for pricing analytics, Data cleaning and transformation, Data quality assurance, Exploratory Data Analysis. Importance of pricing in business strategy, Key pricing concepts and terminology, Role of data analytics in pricing decisions,

Unit 2: - Cost Analysis and Pricing - Market Analysis and Pricing, Market segmentation and targeting, Competitive analysis, Customer behaviour and price elasticity, Cost structures and break-even analysis, Pricing for profit maximization, Value-based pricing strategies,

Unit 3: - Descriptive statistics Data Collection and Preparation, Visualizing pricing data, Customer segmentation using analytics, Predictive Analytics for Pricing, Regression analysis for price prediction, Demand forecasting.

Unit 4: Dynamic Pricing Strategies – Time-based and demand-based pricing , Personalized pricing strategies , Pricing experiments and A/B testing, Price optimization models.

Textbooks and Reference Materials:

"Pricing Analytics: Models and Advanced Quantitative Techniques for Product Pricing" by Walter R. Paczkowski - A comprehensive guide to pricing analytics concepts and methods.

Online tutorials and documentation for pricing analytics tools and software (e.g., Excel, Python, R, pricing optimization software).

MBA/302/BA

BUSINESS ECONOMETRICS

COURSE OUTCOMES: After completion of this course the students will be able to

CO	COURSE OUTCOMES
1	Understand the principles and concepts of econometrics.
2	Apply statistical techniques to analyse economic and business data.
3	Interpret and communicate econometric results.
4	Make informed business decisions based on econometric analysis.
5	Apply econometric methods in real-world business scenarios.

Unit 1: - Introduction to Econometrics: Definition and scope of econometrics, Role of econometrics in business and economics, Basic concepts and terminology, Data Collection and Preparation, Data sources in economics and business, Data cleaning, transformation, and formatting, Dealing with missing data,

Unit 2: - Introduction to panel data: Fixed effects and random effects models, Applications in business and economics, Panel data software tools, Economic and Business Forecasting, forecasting methods and models, evaluating forecast accuracy, Forecasting in business planning, Leading economic indicators.

Unit 3: - Causality and Endogeneity: Causal relationships in economics, Endogeneity and instrumental variables, Granger causality, Methods for addressing endogeneity, Heteroscedasticity and Autocorrelation, Detection and consequences of heteroscedasticity, Detection and consequences of autocorrelation, Remedies for heteroscedasticity and autocorrelation.

Unit 4: - Applications in Business Decision-Making: Pricing strategies and elasticity estimation, Marketing analytics and sales forecasting, financial modelling and risk analysis, Operations and supply chain optimization, Panel Data Analysis, Econometric Software Tools

Textbooks and Reference Materials:

"Econometrics for Dummies" by Roberto Pedace - An accessible introduction to econometrics.

"Principles of Econometrics" by R. Carter Hill, William E. Griffiths, and Guay C. Lim - A comprehensive textbook on econometric principles.

Econometrics software tutorials and documentation (e.g., R, Python, STATA, EViews).

MBA/303/BA

APPLIED DATA ANALYTICS

COURSE OUTCOMES: After completion of this course the students will be able to

CO	COURSE OUTCOMES
1	Apply advanced natural language processing (NLP) techniques, including deep learning, to text data.
2	Understand and implement topic modelling for text data.
3	Perform sentiment analysis in multiple languages and contexts.
4	Apply text analytics to specialized domains and industries.
5	Design and execute complex text analytics projects.

Unit 1: - Introduction to Text Analysis: Text preprocessing, Define text analysis and its applications in data analytics, Explore the challenges and opportunities of working with unstructured text data, Introduce the concept of text preprocessing, importance of text preprocessing in preparing text data for analysis.

Unit 2: - Advanced Natural Language Processing (NLP): Introduction to advanced NLP techniques, Recurrent Neural Networks (RNNs) and Long Short-Term Memory (LSTM) networks for text, Transformer models and attention mechanisms, Deep Learning for Text Classification, Text classification using deep learning, Transfer learning with pre-trained embeddings (e.g., Word2Vec, BERT), Building custom deep learning models for text classification tasks.

Unit 3: - Sentiment Analysis in Multiple Languages: Advanced sentiment analysis techniques, Sentiment analysis in multilingual and cross-lingual settings, Handling sarcasm, irony, and context in sentiment analysis, Named Entity Recognition (NER) and Information Extraction, Introduction to NER and information extraction, NER using rule-based and machine learning approaches.

Unit 4: - Advanced Text Analysis Techniques: modelling methods like Latent Dirichlet Allocation (LDA), techniques can uncover deeper insights from text data, Explore advanced text analysis techniques such as Named Entity Recognition (NER), Explore sentiment analysis methods, including lexicon-based and machine learning-based approaches, challenges in sentiment analysis, such as sarcasm and context.

Tools and Resources:

"Natural Language Processing in Action" by Lane, Howard, and Hapke: This book provides a practical introduction to natural language processing techniques, including text analysis and sentiment analysis.

"Text Mining and Analysis: Practical Methods, Examples, and Case Studies Using SAS" by Goutam Chakraborty, Murali Pagolu, and Satish Garla: A comprehensive guide to text mining and analysis using SAS software.

"Applied Text Analysis with Python" by Benjamin Bengfort, Tony Ojeda, and Rebecca Bilbro: This book focuses on practical text analysis techniques using Python, including text preprocessing, sentiment analysis, and topic modeling.

Python or R programming for text and sentiment analysis.

Text analysis libraries (e.g., NLTK, spaCy, TextBlob) and machine learning frameworks (e.g., scikit-learn).

Datasets for sentiment analysis (e.g., movie reviews, product reviews, social media comments).

MBA/304/BA

BIG DATA ANALYTICS

COURSE OUTCOMES: After completion of this course the students will be able to

CO	COURSE OUTCOMES
1	Utilize advanced big data processing frameworks and technologies (e.g., Hadoop, Spark, Flink).
2	Implement deep learning techniques for big data analysis.
3	Perform real-time analytics and streaming data processing.
4	Apply big data analytics to specific industries and domains.
5	Design and execute complex big data analytics projects.

Unit 1: - Advanced Big Data Concepts: Review of big data fundamentals, Introduction to distributed computing and parallel processing, Big data storage solutions and data lakes

Unit 2: - Advanced Big Data Processing Frameworks: - In-depth study of Apache Hadoop and Hadoop ecosystem components, introduction to Apache Spark and Spark RDDs (Resilient Distributed Datasets), Real-time processing with Apache Flink.

Unit 3: - Deep Learning for Big Data, Introduction to deep learning and neural networks, Deep learning libraries for big data (e.g., TensorFlow, PyTorch), Applying deep learning to big data analytics,

Unit 4: - Real-time Analytics and Stream Processing, Introduction to stream processing, Apache Kafka for real-time data ingestion, Stream processing with Apache Kafka Streams and Apache Storm

Textbooks and Reference Materials:

"Advanced Analytics with Spark: Patterns for Learning from Data at Scale" by Sandy Ryza, Uri Laserson, Sean Owen, and Josh Wills: A comprehensive guide to advanced analytics with Apache Spark.

"Deep Learning" by Ian Goodfellow and Yoshua Bengio: Covers deep learning techniques applicable to big data.

MBA/305/BA

SUPPLY CHAIN ANALYTICS

COURSE OUTCOMES: After completion of this course the students will be able to

CO	COURSE OUTCOMES
1	Utilize advanced big data processing frameworks and technologies (e.g., Hadoop, Spark, Flink).
2	Implement deep learning techniques for big data analysis.
3	Perform real-time analytics and streaming data processing.
4	Apply big data analytics to specific industries and domains.
5	Design and execute complex big data analytics projects.

Unit 1: - Advanced Supply Chain - Concepts, Review of supply chain fundamentals, Advanced supply chain analytics techniques, Integration of supply chain analytics with business strategy,

Unit 2: - Demand - Forecasting and Inventory Optimization, Advanced demand forecasting models, Inventory optimization techniques (e.g., EOQ, safety stock), Dynamic pricing and revenue management, Transportation and Logistics Optimization, Routing and scheduling optimization, Freight optimization and carrier selection, Last-mile delivery and urban logistics.

Unit 3: - Supplier Relationship Management (SRM) The role of SRM in procurement and supply chain management, Benefits and challenges of effective SRM, Key components of SRM strategy, Developing an SRM Strategy, setting strategic objectives for SRM, Supplier segmentation and categorization, Designing and implementing an SRM framework, Identifying and assessing supplier risks, Risk mitigation strategies and contingency planning.

Unit 4: -Real-time Supply Chain Analytics, The importance of real-time data in supply chain management, Challenges and opportunities in real-time supply chain analytics, Overview of IoT and sensor technologies. IoT and sensor data in supply chain analytics, Real-time data processing and analytics, Case studies on real-time supply chain decision-making.

Textbooks and Reference Materials:

"Supply Chain Analytics" by Charles D. Chadwell: A comprehensive guide to supply chain analytics techniques and applications.

"Supply Chain Management: Strategy, Planning, and Operation" by Sunil Chopra and Peter Meindl: A textbook that covers supply chain management principles and strategies.

Academic papers and articles on recent advancements in supply chain analytics.

MBA/306/BA

E-COMMERCE ANALYTICS

CO	COURSE OUTCOMES
1	Understand the role of analytics in e-commerce and its impact on business success.
2	Analyse e-commerce data to uncover customer behaviour patterns.
3	Optimize website performance and user experience through analytics.
4	Implement data-driven marketing strategies for e-commerce.
5	Apply e-commerce analytics techniques to real-world scenarios and industries.

Unit 1: - Introduction to E-commerce Analytics: The role of analytics in e-commerce, Benefits of data-driven decision-making in online retail, Key metrics and KPIs for e-commerce success, Data Collection and Tracking

Unit 2: - Implementing analytics tools (e.g., Google Analytics, Adobe Analytics) for e-commerce, Data collection best practices and compliance with privacy regulations, setting up e-commerce tracking and conversion goals, Customer Behaviour Analysis, Analysing customer journeys and behaviour on e-commerce websites, Cart abandonment analysis and recovery strategies, Heatmaps and user session recording for UX optimization.

Unit 3: -Product and Content - Understanding the importance of product recommendations in e-commerce, Types of product recommendation algorithms (collaborative filtering, content-based, hybrid), Implementing recommendation systems using collaborative filtering. Optimization, Product recommendations and personalization, A/B testing for product pages and content, SEO and content marketing strategies for e-commerce,

Unit 4: - Driven Marketing for E-commerce: Email marketing analytics and segmentation, Paid advertising and PPC campaign analytics, Social media analytics for e-commerce, Conversion Rate Optimization, Conversion rate analysis and improvement strategies., Multivariate testing and user experience (UX) design, E-commerce analytics tools for CRO.

Textbooks and Reference Materials:

"Web Analytics 2.0: The Art of Online Accountability and Science of Customer Centricity" by Avinash Kaushik: Focuses on web analytics for e-commerce.

"E-commerce Analytics: Analyze and Improve the Impact of Your Digital Strategy" by Judah Phillips: Covers e-commerce analytics strategies and techniques.

Academic papers and articles on e-commerce analytics best practices and case studies.

MBA/307/BA

RETAIL ANALYTICS

CO#	Course Outcome
1	To enable the students to know about the information needs of Management.
2	To introduce software packages like MS-EXCEL/SPSS/R for Retail Analytics
3	To introduce Promotion metrics, Web metrics and analysis
4	To analyse the consumer needs and product attributes choices that drives sales

Unit-1

Measuring price and promotion response in retailing - Location strategy in retailing - Retailer's Retail Assortment Decisions: Consumer Choice, Private Labels, site location decision, Assortment Planning

Unit-2

Retailer's expansion, contraction, and franchising decisions - Omni-channel in retailing – Retail Trends: Online Retailing

Unit-3

Retail Trends: Internationalization, hard Discounters - Future of retailing - Spatial analysis: descriptive

Unit-4

Spatial analysis: spatial regressions - Probit model - Nonlinear model - Difference-in- differences (DID) models

Suggested Readings:

1. Wayne L. Winston (2014). Marketing Analytics-Data-Driven Techniques with Microsoft® Excel, John Wiley & Sons, Inc., Indianapolis, Indiana
2. Stephen Sorger (2013), Marketing Analytics: Strategic Models and Metrics, Atlantic Publishers and Distributors.
3. Hasty and Reardon: Retail Management, McGraw-Hill

MBA 308

UNIVERSAL HUMAN VALUES - I

CO#	Course Outcome
1	Distinguish between values and skills, happiness and accumulation of physical facilities, the Self and the Body, Intention and Competence of an individual, etc.
2	Analyze the value of harmonious relationships based on trust and respect in their life and profession.
3	Examine the role of a human being in ensuring harmony in society and nature and Apply the understanding of ethical conduct to formulate the strategy for ethical life and profession.

Unit 1: - Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness, and Prosperity – the Basic Human Aspirations, Right Understanding, Relationship and Physical Facility, Happiness and Prosperity – Current Scenario, Method to fulfil the Basic Human Aspirations. Understanding Human being as the Co-existence of the Self and the Body, distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Program to ensure self-regulation and Health.

Unit 2: - Harmony in the Family – the Basic Unit of Human Interaction, Values in Human-to-Human Relationship, Nine universal values in relationships viz. Trust, Respect, Affection, Care, Guidance, Reverence, Glory, Gratitude, Love.

Unit 3: - Understanding Harmony in Society, Vision for the Universal Human Order, Human Order Five Dimension.

Unit 4: - Understanding Harmony in the Nature, self-regulation & mutual fulfillment among the Four orders of Nature, Realizing Existence as co-existence at all levels holistic perception of harmony in existence.

Textbooks:

1. Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books, New Delhi, 2010.
2. A Foundation Course in Human Values and Professional Ethics, R R Gaur, R Asthana, G P Bagaria, 2nd Revised Edition, Excel Books, New Delhi, 2019. ISBN 978-93-87034-47-1

Reference Books:

1. Jeevan Vidya: Ek Parichaya, A Nagaraj, Jeevan Vidya Prakashan, Amarkantak, 1999.
2. Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi, 2004.
3. The Story of My Experiments with Truth - by Mohandas Karamchand Gandhi
4. On Education – J Krishnamurthy

Course Name: Master of Business Administration (Business Analytics) Semester 4

Sr. No.	Subject Code	Name of Subject	Hrs/Week	Course Type	Credit	Examination Scheme						
						Duration of Exam Hours	External		Internal		Total Max Marks	Min. Agg. Marks
							Max Marks	Min. Pass Marks	Max Marks	Min. Pass Marks		
1	MBA/401	Corporate and Social Responsibility	4	DSC	4	3	70	35	30	15	100	250
2	MBA/402	UHV 2	4	DSC	4	3	70	35	30	15	100	
3	MBA/403/BA	Internship Project Report & Viva-Voce	6	RP	6	---	100	50	100	50	200	
4	MBA/404/BA	Case Study Preparations and Presentations	4	Case Study	4	---	Internal Assessment				100	
Total			18		18						500	250

MBA 401

Corporate and Social Responsibility

CO#	Course Outcome
1	Understanding of corporate governance principles and their importance for business sustainability
2	Analyze and interpret various theoretical perspectives on corporate governance to inform strategic decision-making.
3	Apply practical governance mechanisms and best practices to enhance transparency, accountability, and risk management.
4	Integrate CSR principles into corporate governance frameworks to promote ethical conduct, stakeholder engagement, and social responsibility.

Unit 1: Introduction to Corporate Governance

Definition of Corporate Governance, Historical Evolution, Principles of Corporate Governance, Theoretical Frameworks, Corporate Governance Structures, Global Perspectives.

Unit 2: Theoretical Perspectives on Corporate Governance

Agency Theory, Stakeholder Theory, Shareholder vs. Stakeholder Approaches, Ethical Considerations, Governance Models, Governance Failures

Unit 3: Corporate Governance Mechanisms

Board of Directors, Executive Compensation, Auditing and Financial Reporting, Risk Management, Shareholder Activism, Governance Codes and Guidelines

Unit 4: Corporate Social Responsibility (CSR) and Integration with Corporate Governance

Concept of CSR, Business Ethics, CSR Strategies, CSR Reporting and Transparency, Integration with Governance, Future Trends.

Reference Books:

1. Agarwal, R. N., Agrawal, N. M. (Indian Author). (Year). Corporate Governance: Principles, Policies, and Practices.
2. Das, Bhagwan. (Indian Author). (Year). Corporate Governance and Accountability: Text and Cases.
3. Basu, Sudipta. (Indian Author). (Year). Corporate Governance: Theory and Practice. Publisher.
4. Gupta, C. B. (Indian Author). (Year). Corporate Governance: Concepts and Cases. Publisher.

MBA/402

UNIVERSAL HUMAN VALUES-II

CO#	Course Outcome
1	Understand and nurture emotional bonds, trust, and respect for harmonious human interactions.
2	Evaluate systems for societal well-being, addressing misunderstandings and fostering mutual enrichment.
3	Recognize interconnectedness in nature and society, promoting a holistic view of harmony.
4	Establish ethical foundations and competence, transitioning to value-based living and work in a universal order.

UNIT -1 Harmony in the Family:

Feelings, Justice in Human-to-Human Relationship, Vision for the Universal Human Order, Exploring the Feeling of Trust, Exploring the Feeling of Respect

UNIT-2 Harmony in the Society: Human Goal

Exploring Systems to fulfil Human Goal and Gross Misunderstanding / Self Reflection

Human Order, Systems / Dimensions -

1. Education – Sanskar
2. Health – Self-regulation
3. Production – Work
4. Justice – Preservation
5. Exchange – Storage

Mutually Enriching, Cyclic Process

UNIT-3 Harmony in the Nature / Existence:

Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence

UNIT- 4 Implications of the Holistic Understanding – a Look at Professional Ethics:

Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order, Competence in Professional Ethics, Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession, among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence

Suggested Readings:

1. Jeevan Vidya: Ek Parichaya, A Nagaraj, Jeevan Vidya Prakashan, Amarkantak, 1999.
2. Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi, 2004.
3. The Story of Stuff (Book).
4. The Story of My Experiments with Truth - by Mohandas Karamchand Gandhi
5. Small is Beautiful - E. F Schumacher.

Master of Business Administration

SEMESTER IV

Course Name: - MBA in Business Analytics

MBA/403/BA

Internship Project Report & Viva-Voce

a. Dissertation / Research Project (SIP/OJT/FP) for MBA Students

i. Overview

1. To graduate with a degree in Management, fourth-semester students undertake a research project focusing on their chosen specialization. This project aims to deepen their understanding of key concepts, explore emerging market trends, gain practical experience, and develop solutions to real-world business problems. Students submit their project reports for evaluation by internal and external examiners for receiving their final grade. The assessment is determined through an external viva-voce examination held after the completion of their project.

ii. Credits and Duration

1. The RP is worth six credits, and each credit is equivalent to 15 - 30 hour of effective work. This means that students are expected to work on their RP for a total of 60-90 days over the twelve-week period.

iii. Approval Process

1. Before commencing the SIP, students must seek advance written approval from their faculty guide and the Head of the Department.

iv. Evaluation

1. The RP is evaluated in following ways:
 - a. **Internal / External viva-voce:** After the completion of RP, students will participate in an external viva-voce examination for their RP. The viva-voce will be conducted by a panel of external examiners and internal examiner and will be worth 200 marks combined. (100 marks for external and 100 marks for internal examiners)

v. SIP Report must contain

- Institute's Certificate
- Certificate by the Company
- Formal feedback from the company guide
- Executive Summary
- Organization profile
- Outline of the problem/task undertaken
- Research methodology & data analysis (in case of research projects only)
- Relevant activity charts, tables, graphs, diagrams, AV material, etc.
- Learning of the student through the project
- Contribution to the host organization
- References in appropriate referencing styles. (APA, MLA, Harvard, Chicago Style etc.)

MBA/404/BA

Case Study Preparation and Presentation

b. Case Study Preparation and Presentation for MBA Students

i. Overview

1. Each student or a group of students will require to present their findings in the form of a case study.

ii. Credits and Duration

1. The Case study is worth six credits, and each credit is equivalent to 6 hours of effective work. This means that students are expected to work on inside the classroom for a total of 48 hours over the eight-week period.

iii. Approval Process

1. Before commencing the case study, students must seek advance written approval from their faculty guide and the Head of the Department. Students must also identify the topics for case study based on their either research project or Internship project.

iv. Evaluation

1. The Case study is evaluated in following ways:
 - a. **Internal evaluation:** The Project guide along with subject expert will evaluate the student's work based on the nature and quantum of work undertaken, the effectiveness of the work, and the overall professionalism of the student. The viva-voce will be conducted by a panel of internal examiners and will be worth 100 marks.