MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB
Syllabus of BBA in Business Analytics
(Effective for 2020-2021 Admission Session)
Choice Based Credit System
140 Credit (3-Year UG) MAKAUT Framework
w.e.f 2020-21

Semester-V

Paper Name: Business Ethics and Corporate Social Responsibility

Paper Code: BBA (BA) – 501

Total Credit: 6

Total hours of lectures: 60 hours

Course Outcome:

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

1. Define students to learn the common ethical issues in business.
2. Analyze how business people make ethical decisions and handle ethical issues.
3. Illustrate specific measures of companies for building effective ethical programs.
4. Analyze the impact of CSR implementation on corporate culture, particularly as it relates to social issues.

Sl.	Topic/Module	Hours
1.	Module 1: Overview of Values & Ethics: Definition, Origin and evolution of Ethics- Individual moral character, Ethical dilemma.	5
2.	Module 2: Ethics in Business: Unethical practices in various functional areas of business.	5
3.	Module 3: Management of Ethics: Role of organization in creating and sustaining ethical values, Ethics for managers, Role and function of ethical managers- Comparative ethical behaviour of managers, Code of conduct/ Code of ethics.	5
4.	Module 4: Legal Aspects of Ethics: legal provisions against unethical practices.	5
5.	Module 5: Ethical practices towards environment: 3P theory.	10
6.	Module 6: Overview of CSR: Definition, Concept and Practice.	5
7.	Module 7: CSR Implementation: CSR Practices of some reputed companies.	5
8.	Module 8: Regulatory Aspects of CSR: Provisions under Companies Act, Income Tax Act. Role of trust, society and non-profit	10

	organization.	
9.	Module 9: Case Study	10

Suggested Readings:

1. C.S.V Murthy, "Business Ethics- Text and Cases",, Himalayan Publishing House, 2010.
2. Luura P.Hartman Joe DesJardins, Business Ethics, Mc Hill Education, 2013.
3. Chakraborty, S.K., "Human Values for Managers",1995.
4. Badi, R.V. and Badi, N.V., "Business Ethics", Vrinda Publications.
5. S.A. Sherlekar, “Ethics in Management”, Himalaya Publishing House,2003.

6. K.S. Ravichandran: Corporate Social Responsibility – Emerging Opportunities And Challenges In India, Lexis Nexis.

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Paper Name: Entrepreneurship

Paper Code: BBA (BA) 502

Total Credit: 6

Total hours of lectures: 60 hours

Course Outcome:

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

1. Develop the concepts of entrepreneurship and the role of an entrepreneur in the economic development

2. Illustrate various steps as well as aspects involved in entrepreneurship in India

3. Develop understanding about scope and policies in women entrepreneurship.

3. Apply various tools and techniques in solving real life problem in developing entrepreneurship.

Sl.	Topic/Module	Hours
1.	**Module 1:** Introduction to Entrepreneurship Definition of Entrepreneur, Entrepreneurial Traits, and Entrepreneur vs. Manager, Entrepreneur vs. Entrepreneur. The Entrepreneurial decision process. Role of Entrepreneurship in Economic Development, Ethics and Social responsibility of Entrepreneurs. Opportunities for Entrepreneurs in India and abroad.	10
2.	**Module 2**: **Entrepreneurial Behaviors:** Entrepreneurial Motivation, Need for Achievement Theory, Risk-taking Behavior, Innovation and Entrepreneur. **Entrepreneurial Talents :** Definitions, Characteristics of Entrepreneurs, Entrepreneurial Types, Functions of Entrepreneur.	14
3.	**Module 3**: **Entrepreneurial Development in India:** History, Objectives, Stages of Growth, Target Group, Programmes, Govt. Policy towards Small Scale Industries (SSI's). **Organization Assistance:** Start-ups and Govt. schemes for encouraging starts-ups like Mudra, e Biz New Ventures, Industrial Park (Meaning, Features, & Examples),	16

	10Special Economic Zone (Meaning, Features & Examples) Financial Assistance by Different Agencies , Small Scale Industries, The Small Industries Development Bank of India (SIDBI) , The State Small Industries Development Corporation (SSIDC), Science and Technology Entrepreneurs' Park (STEP) etc.	
4.	**Module 4**: **Entrepreneurial strategy:** New Entry, Entry Strategy, Risk Reduction Strategy for New Entry.	04
5.	**Module 5**: Conceptual Framework for detecting sickness in SSIs, Status, Dimensions of SSIs, Symptoms for detecting sickness, Causes for Sickness, Govt. Policies to strengthen the SSIs.	06
6.	**Module 6:** Woman as Entrepreneurship: Introduction, Scope, National Policy, Supporting Programs, Employment and Income Generation-cum-production units.	10

Suggested Readings:

1. Lall & Sahai : Entrepreneurship,Excel Books

2. Pareek, U & Venkateswara Rao, T : Developing Entrepreneurship – A Handbook on Systems, Learning Systems, New Delhi.

3. Druckar, Peter : Innovation and Entrepreneurship, Heinemann.

4. Chakraborty, Tridib : Introducing Entrepreneurship Development, Modern Book Agency.

5. Manimala, M.J.: Entrepreneurial Policies and Strategies,TMH.

6. McClelland, D.C. & Winter, W.G. : Motivating Economic Achievement, Free Press.

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Paper Name: Data Analytics Skills for Managers

Paper Code: BBA (BA) 503 (A)

Total Credit: 6

Total hours of lectures: 60 hours

Course Outcome:

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

1. Relate themselves with importance, role and application of data analytics in business domain.
2. Identify three core types data analytical techniques i.e. exploratory, descriptive, and causal along with its nature and application.
3. Classify the application of appropriate analytical techniques in appropriate situation
4. Outline the basic concepts of statistical quality control

Sl.	Topic/Module	Hours
1.	Module 1: Introduction to Data Analytics: Definition, Role of data analytics in business, tools used in data analytics, Application of analytics in business.	5
2.	Module 2: Data Collection and Data Pre-Processing Data Collection Strategies – Data Pre-Processing Overview – Data Cleaning – Data Integration and Transformation – Data Reduction – Data Discretization.	5
3.	Module 3: Exploratory Data Analytics and Descriptive Statistics – Stem and Leaf Diagram, Mean, Standard Deviation, Skewness and Kurtosis, ANOVA. Some useful plots: Box Plots – Pivot Table – Heat Map.	5
4.	Module 4: Correlation and Regression: Scatter Diagram – Karl Pearson's Correlation Coefficient – Rank Correlation - Correlation Coefficient for Bivariate Frequency Distribution, Simple and Multiple Regression: Introduction, Overview, Importance, Application of Least Square Method, Model Evaluation through Visualization: Residual Plot – Distribution Plot,	10
5.	Module 5: Logistic Regression: Discrete choice models, Logistic Regression, Logistic Model Interpretation, Logistic Model Diagnostics, Logistic Model Deployment	5

6.	Module 6: Strategic Marketing Analytics: The STP framework, Value generation through STP framework, Managing the segmentation process, Segmentation in Real world: Cluster Analysis, Hierarchical and Non-Hierarchical - K Means Clustering, Prediction of Customer's segment membership: Discriminant Analysis (DA), Two-Group DA.	10
7.	Module 7: Quantitative Techniques used in Advanced Decision Making: Multi-Criteria Decision Making [MCDM], Analytic Hierarchic Processing [AHP], Using Excel Solver for Optimization Techniques.	10
8.	Module 8: Data Analysis using MS-Excel: What If Analysis, Goal Seek Analysis	5
9.	Module 9: Statistical Quality Control: Types of Inspection; Statistical Quality Control – Acceptance Sampling and Control Charts.	5

Suggested Readings:

1. Stephen G. Powell, Kenneth R. Baker: Management Science, The Art of Modeling with Spreadsheets, Wiley.

2. Nagraj Balakrishnan, Barry Render: Managerial Decision Modeling with Spreadsheets, Jr. Ralph M. Stair Prentice Hall.

3. N. D. Vohra: Quantitative Techniques in Management, Tata McGraw-Hill Education.

4. Eugene Lodewick Grant: Statistical Quality Control, McGraw-Hill
Richard S. Leavenworth.

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

6.Namakum R N Prasad, Seema Acharya: Fundamentals of Business Analytics, Wiley.

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Paper Name: Business Intelligence

Paper Code: BBA (BA) 503 (B)

Total Credit: 6

Total hours of lectures: 60 hours

Course Outcome:

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

1. Summarise the concepts and components of Business Intelligence (BI).

2. Illustrate the use of technologies and tools related to BI

3. Outline the technological architecture that underpins BI systems.

4. Apply the use of BI for supporting decision making in an organisation.

Sl.	Topic/Module	Hours
1.	**Module 1: Introduction to Business Intelligence**: BI concept, BI architecture, BI in today's perspective, BI Process, Applications of BI like Financial analysis, statistical analysis, sales analysis, CRM, result pattern and ranking analysis, Balanced Scorecard, BI in Decision Modelling: Optimization, Decision making under uncertainty. Ethics and business intelligence.	08
2.	**Module 2: Elements of Business Intelligence:** Reports & ad hoc queries; Analyse OLAP data; Dashboards & Scorecards development, Metadata Models; Automated tasks & events; Mobile & disconnected BI.	08
3.	**Module 3: Building the BI Project:** Planning the BI project, Project Resources, Project Tasks, Risk Management, Cost-justification, Collecting User Requirements, Requirements-Gathering Techniques, Prioritizing & Validating BI Requirements, Changing Requirements, BI Design and Development, Best Practices, Post-Implementation Evaluations.	10
4.	**Module 4: Data Science**: The concept, process and typical tools in data science. Example of different algorithms i.e. segmentation, classification, validation, regressions, recommendations.	08
5.	**Module 5: Data Visualization and Dashboard Design:** Responsibilities of BI analysts, Importance of data visualization, types of basic and composite charts, dashboards.	10

6	**Unit 6: Reporting authoring:** Building reports with relational vs Multidimensional data models ; Types of Reports – List, crosstabs, Statistics, Chart, map, financial etc., Data Grouping & Sorting, Filtering Reports, Adding Calculations to Reports, Conditional formatting, Adding Summary Lines to Reports.	08
7	**Module 7: Future of Business Intelligence:** Emerging Technologies, Machine Learning, Predicting the Future with the help of Data Analysis, BI Search & Text Analytics – Advanced Visualization – Rich Report, Future beyond Technology.	08

Suggested Readings:

1. Vercellis Carlo: Business Intelligence, Wiley India Pvt. Ltd.
2. Meenakshi Gupta: Business Intelligence and Applications, BUUKS.
3. Dr.Manoj Kumar Patel: Business Intelligence in Decision Making , BUUKS.
4. Ramesh Sharda (Author), Dursun Delen (Author), Efraim Turban: Business. Intelligence and Analytics: Systems for Decision Support, Pearson Education.
5. Surma Jerzy: Business Intelligence, Business Expert Press.
6. Sharda Ramesh: Business Intelligence and Analytics, Pearson.

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Paper Name: Human Resource Analytics.

Paper Code: BBA (BA) 504 (A)

Total Credit: 6

Total hours of lectures: 60 hours

Course Outcome:

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

1. Develop an understanding of the role and importance of analytics in managing human resource effectively.
2. Apply analytical techniques in human resource domain to successfully conduct various HR functions
3. Develop an understanding about the concept and relevance of HR metrics.
4. Build an idea about the usefulness of HR dashboard and application of software in HR domain.

Sl.	Topic/Module	Hours
1.	Module 1: Understanding HR analytics: Definition, Understanding the need, Human capital data storage, Current state of HR analytic professional and academic training, HR analytics and HR people strategy, Becoming a persuasive HR function, Usage, ethics and limitations.	8
2.	Module 2: Basic concepts, module and application of HR information systems and data.	8
3.	Module 3: Analysis strategies: From descriptive reports to predictive analytics, Statistical significance, Data integrity, Types of data, Concept of Independent-Dependent variable, When to use which test.	8
4.	Module 4: Employee attitude surveys – engagement and workforce perceptions: What is employee engagement. How do we measure employee engagement, Interrogating the measures, Cases.	8
5.	Module 5: Predicting employee turnover: Employee turnover and why it is such an important part of HR management information, Descriptive	8

	turnover analysis, measuring turnover at individual or team level, Exploring differences in both individual and team-level turnover, Cases.	
6.	Module 6: Predicting employee performance: Method and measure to indicate performance, Cases.	8
7.	Module 7: Recruitment and selection analytics: Reliability and validity of selection methods, Human bias in recruitment selection, Cases.	6
8.	Module 8: **HR Metrics** –Defining metrics, Demographics, data sources and requirements, Types of data, tying data sets together, Difficulties in obtaining data, ethics of measurement and evaluation. Human capital analytics continuum.	4
9.	Module 9: Concepts of **HR Dashboards,** Statistical software used for HR analytics.	2

Suggested Readings:

1. Dr Martin Edwards, Kirsten Edwards: Predictive HR Analytics: Mastering the HR Metric, Kogan Page.
2. Ramesh Soundararajan and Kuldeep Singh: Winning on HR Analytics: Leveraging Data for Competitive Advantage, Sage.
3. Dipak Kumar Bhattacharyya: HR Analytics: Understanding Theories and Applications, Sage.
4. Jac Fitz-enz: The New HR Analytics: Predicting the Economic Value of Your Company's Human Capital Investments, Amacom.

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Paper name: Healthcare Analytics

Paper Code: BBA (BA) 504 (B)

Total Credit: 6

Total hours of lectures: 60 hours

Course Outcome:

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

1. Illustrate the importance of Health Care Data as an Organizational Asset.
2. Outline various sources, types of organizational data and basic statistical tools to describe the data.
3. Identify various analytical techniques that can be applied on the healthcare data.
4. Demonstrate the concept of metrics and KPIs in Healthcare Analytics.

Sl.	Topic/Module	Hours
1.	**Module – 1**: Introduction to Quality Improvement and Data Analytics: Drivers for health care transformation , quality initiatives that have shaped the national health care landscape , health care quality and value, the background and evolution of quality and performance improvement , the quality improvement frameworks , health care data analytics, how analytics can help transform health care.	10
2.	**Module 2**: Health Care Data as an Organizational Asset: data information, knowledge and wisdom hierarchy, data information, knowledge and wisdom hierarchy, sources of health care data, challenges HCO's face when using data for quality and performance improvement, organizational approach for effective use of data analytics, role of data governance.	10
3.	**Module 3**: Working with Data: information value chain, importance of data context and relevance to business processes, common data types, basic	10

	statistical terms, common patterns or distributions in statistics, charts for graphical representations.	
4.	**Module 4**: Data Analytics Tools and Techniques for Health Care: Data analytics terms, process steps of data analytics, role of the data analyst, analyze and interpret healthcare data effectively, key data warehouse concepts, basic introduction enterprise data architecture as seen in health care organizations.	10
5.	**Module 5**: Using Data to Solve Problems: Define measures, metrics, and indicators, the purpose and use of Key Performance Indicators (KPI's), IHI Triple Aim to prioritize performance goals, the DMAIC problem-solving model and methodology.	10
6.	**Module 6:** Using the Data to Tell the Story: ways to effectively display data, select appropriate options for displaying information, Identify background information, determine what information stakeholders want and need to know, determine the best ways to communicate information with specific audiences	10

Suggested Readings:

1. Reddy & Aggarwal, Healthcare Data Analytics, Chapman and Hall.
2. Vikas Kumar, Healthcare Analytics Made Simple: Techniques in healthcare computing using machine learning and Python, Packt Publishing
3. Maheshwari , Data Analytics, McGraw Hill India
4. Mohammed Alfan, Data Analytics, SKILLS TO SUCCEED
5. Ross.M., Mulner Edward, M.Rafalsky, Healthcare Analytics: Foundation & Frontires, Taylor & Francis Ltd
6. Trevor. L. Strome, Healthcare Analytics for Quality and Performance Improvement, John Wiley & Sons

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Paper name: Financial Analytics

Paper Code: BBA (BA) 504 (C)

Total Credit: 6

Total hours of lectures: 60 hours

Course Outcome:

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

1. Extend the concept of advanced financial management and risk analysis
2. Create an understanding on analysis of financial data using different statistical tools.
3. Dissect the financial services on the basis of machine learning and artificial intelligence
4. Construct the model on optimal portfolio selection and Risk-Return Trade-off & Quadratic Utility

Module/Topics	Hours
Module 1: Introduction to Financial Analytics: Analytical thinking, Role of a Financial Analyst, News analytics (accessing news using web scrapping) and sentiment analysis in finance, Data Driven Financial Decision, Decision making under uncertainty,	04
Module 2: Introduction to Analysis of Financial Data Using Statistical Tools: Statistical concepts; Probability, Normal, Lognormal distribution properties, Data visualization, Understanding data in finance, cleaning and pre-processing of data, Application of software on different forms of financial data set- Time Series and Cross Sectional Data	12
Module 3: Financial Modelling: Introduction to Basic Financial Functions in Excel, Discounted Cash flows, Annuity, PMT, PV, NPV, IRR, Financial modelling using Ratios, income statement and financial statements using Excel	16
Module 4: Application of Data Science across Financial Services: Learn about Financial Data Analytics with respect to Data Science in Financial Services, Artificial Intelligence and Machine Learning in Financial Services, Usage of AI in Algorithmic Stock Trading, Automated Robo-Advisors, Fraud Detection and Prevention.	12

Module 5: Optimal Portfolio Allocation: Capital Allocation Line (CAL) and Optimal Portfolio, Lending and Borrowing on the CAL, analysis using indifference curves. CAPM- Features of Markowitz analysis, expected returns from historical averages, efficient frontier.	10
Module 6: Risk-Return Trade-off & Quadratic Utility: Investments and trade consumption across time, trade-off between risk and return, decision making under uncertainty, indifference curves, quadratic utility function, etc.	6

References:

1. M. J., & Hugen, D. L . Financial analytics with R: building a laptop laboratory for data science Bennett, Cambridge University Press.
2. Hilpisch, Y. " O'Reilly Python for Finance: Analyze big financial data, Media, Inc.".
3. Consoli, S., Reforgiato Recupero, D., & S. Data Science for Economics and Finance. Methodologies and Applications, Springer Nature.
4. Aldridge, I., & Avellaneda, M. John Big data science in finance- Wiley & Sons.
5. Lukomnik, J., & Hawley, J. P Moving Beyond Modern Portfolio Theory- Investing that Matters,. :. Routledge.
6. Reilly, F. K., & Brown, K. C Investment Analysis and Portfolio Management., Cengage Learning.
7. Rees, M. John. Principles of financial modelling: model design and best practices using Excel and VBA. Wiley & Sons.