



# ST. ALOYSIUS COLLEGE(AUTONOMOUS), JABALPUR

Reaccredited 'A+' Grade by NAAC(CGPA:3.68/4.00)

College with Potential for Excellence by UGC

DST-FIST Supported & STAR College Scheme by DBT

**Faculty of Commerce**  
**Bachelor of Commerce**  
**B. Com VI Semester**  
**Elective- BUSINESS ANALYTICS**

## Course Outcomes

CO. No.	Course Outcomes	Cognitive Level
CO1	Understand the basic concepts and interdisciplinary nature of AI.	U
CO2	Analyze the importance of data quality and techniques for dealing with missing or incomplete data.	An
CO3	Apply exploratory data analysis (EDA), data wrangling, and feature engineering techniques in business scenarios.	A
CO4	Implement machine learning algorithms, including classification, clustering, and association, to solve business problems using Python.	A
CO5	Apply predictive analytics techniques, such as correlation, linear regression, and time series analysis, to real-world business forecasting problems.	A

## Credit and Marking Scheme

	Credits	Marks		Total Marks
		Internal	External	
<b>Theory</b>	4	40	60	<b>100</b>
<b>Practical</b>	2	40	60	<b>100</b>
<b>Total</b>	<b>6</b>			<b>200</b>

## Evaluation Scheme

	Marks	
	Internal	External
<b>Theory</b>	3 Internal Exam of 20 Marks During the Semester	1 External Exam end of the Semester
<b>Practical</b>	3 Internal Exam during the semester	1 External Exam end of the semester





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## Content of the Course

### Theory

No. of Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures: 45

Maximum Marks: 60

Units	Topics	No. of Lectures
I	<b>Introduction to Business Analytics:</b> Concept of analytics and Artificial Intelligence, AI in business, Application fields - Marketing Analytics, Finance Analytics, HR Analytics, Operation Analytics, organization and source of data, importance of data quality, dealing with missing or incomplete data, Social Networking Analysis.	12
II	<b>Introduction to Data Science:</b> What is Data Science, Role of Data Scientist in Business & Society, Exploratory Data Analysis (EDA), Data Wrangling, Data Cleaning and Feature engineering, Machine Learning for business analytics: types and techniques, Classification, clustering and association algorithm in business.	11
III	Implementing business problems and its solution using python, Predictive analytics using correlation and linear regression, association in business using Apriori algorithm, Clustering(K-Means) for pattern recognition.	11
IV	<b>Application of time series analysis:</b> Financial forecasting (stock prices, exchange rates), Demand forecasting in retail, Weather Forecasting, Introduction to Natural Language Processing, NLP and NLG, Sentimental Analysis, Product Feedback analysis, Recommendation system.	11

## References

### Text Books:

1. Turban E, Armson, JE, Liang, TP & Sharda, Decision support and Business Intelligence Systems, 8<sup>th</sup> Edition, John Wiley & Sons, 2007
2. Frank J. Ohlhorst, Big Data Analytics, 1st Edition, Wiley, 2012.
3. Efraim Turban, Ramesh Sharda, Jay Aronson, David King, Decision Support and Business Intelligence Systems, 9th Edition, Pearson Education, 2009.





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## Essential Reading / Recommended Reading

- Microsoft Office 2007 Business Intelligence- Reporting, Analysis, and Measurement from the Desktop, Doug Harts, TATA McGraw-Hill Edition, 2008
- Data Mining for Business Intelligence: Concepts, Techniques, and Applications in Microsoft Office Excel with XLMiner, GalitShmueli, Nitin R. Patel, Peter C. Bruce, Wiley Publication, 2010
- The New Science of Retailing: How Analytics are Transforming the Supply Chain and Improving Performance, Ananth Raman, Marshall Fisher, HBR Book Press, 2010
- Data Mining: Concepts and Techniques”, Morgan Kaufmann Publication, 3<sup>rd</sup> Edition, 2011.
- Decision Support and Business Intelligence Systems, Turban, E., Aronson, JE., Liang, T. Sharda R, Prentice Hall Publisher, 10<sup>th</sup> Edition, 2011
- Data Science for Business – What you need to know about data mining and data-analytic thinking, Foster Provost, Tom Fawcett, O’ Reilly Media Publication, 2013
- IDEA from CASEWARE

## List of Practical

1. Load a dataset and perform exploratory data analysis (EDA) with visualizations like histograms and scatter plots using Pandas and Matplotlib.
2. Analyze and visualize a social network using NetworkX, identifying influential nodes through centrality measures.
3. Clean a dataset by handling missing values, removing duplicates, and creating new features using Pandas.
4. Implement a decision tree classifier on a dataset (e.g., customer churn) and evaluate its performance using Scikit-learn.
5. Use linear regression to predict a business outcome (e.g., sales) and analyze the relationships between variables.
6. Apply the Apriori algorithm to a retail dataset to find frequent itemsets and generate association rules using mlxtend.
7. Perform K-Means clustering on a dataset for customer segmentation and visualize the clusters using Scikit-learn and Matplotlib.
8. Forecast stock prices using the ARIMA model by analyzing time series data with statsmodels.
9. Conduct sentiment analysis on product reviews, classifying them as positive, negative, or neutral using NLTK and Scikit-learn.
10. Develop a simple recommendation system to recommend products to users.