Course Code	**22ANDSL304**					
Title of the Course	HR ANALYTICS					
Offered to	**MBA Business Analytics**					
L	3	**T**	0	**P**	0	**C**	3

Year of Introduction:	**2024-25**	Semester:	3
Course Category:	DSE	**Course Relates to:**	**GLOBAL**
Year of Revision	NA	**Percentage of Revision of syllabus:**	Not Applicable
Type of the Course:	Skill Development		
Crosscutting Issues of the Course:	Employee Engagement and Organizational effectiveness		
Pre-requisites, if any	Basic knowledge of Human Resource Management and proficiency in tools like Excel, Power BI and Jasp.		

Course Description:

HR Analytics, also known as People Analytics, is a data-driven approach to managing and optimizing human resources. This course equips students with the knowledge and skills to collect, analyze, and interpret data to make informed HR decisions. By applying analytics to key HR functions such as recruitment, performance management, employee engagement, retention, and workforce planning, students will learn how to align HR strategy with business objectives, improve employee outcomes, and drive organizational success.

Course Aims and Objectives:

S.NO	COURSE OBJECTIVES
1	Understand the importance of HR analytics in strategic decision-making.
2	Identify key HR metrics and KPIs for various HR functions.
3	Use predictive analytics to forecast future HR outcomes such as employee turnover and engagement.
4	Develop data-driven recommendations to improve recruitment, retention, and performance.
5	Communicate HR insights using data visualization and reporting tools.

Course Outcomes

At the end of the course, the student will be able to:

CO NO.	COURSE OUTCOME	BTL	PO	PSO
CO1	Explain the significance of HR analytics in aligning human resource strategies with broader business goals, and its role in driving organizational performance.	K2	1,2	1,2
CO2	Collect, process, and analyze HR data using statistical and analytical tools to generate insights that support evidence-based decision-making in human resources	K1	1,2	1
CO3	Apply predictive analytics techniques to forecast HR trends such as employee turnover, absenteeism, and retention, enabling proactive workforce planning and intervention strategies.	K3	1,2	2
CO4	Use HR analytics to assess workforce diversity and inclusion metrics, helping organizations track progress and identify areas for improvement in building an inclusive workplace.	K3	6,7	2
CO5	Create actionable HR strategies based on data analysis to improve organizational performance in areas such as recruitment, retention, employee development, and workforce planning.	K3	6,7	1,2

For BTL: K1: Remember; K2: Understand; K3: Apply; K4: Analyze; K5: Evaluate; K6: Create

CO-PO-PSO MATRIX									
CO NO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	3	3						3	3
CO2	3	3						2	
CO3	3	3							3
CO4						2	3		3
CO5						2	3	3	2

Codes 3, 2, 1 for High, Moderate and Low correlation Between CO-PO-PSO respectively

UNIT-I: INTRODUCTION TO HR ANALYTICS   (15Hrs.)

Introduction, Concept and definition of HR Analytic, Aligning Human Resources to Business through HR Analytics, Steps for Alignment of HR Analytics with Business Goals and Strategies, Checklists for Strategies and Business-Aligned HR Analytics, History of HR Analytics Applications of HR and Predictive Analytics, Importance and Benefits of HR Analytics, HR Analytics Framework and Models

Exercises:
- Divide students into small groups and assign each group a specific HR function of metric (e.g., Recruitment, Training & Development, Employee Engagement) and ask each group to prepare a dashboard by using simple dataset in Spreadsheet or Power BI.
- Students will use predictive analytics techniques to analyze factors that contribute to employee turnover and predict future turnover rates by using tools like Spreadsheet, R or Python by implementing correlation or regression techniques.
- Ask students to work in teams to map out an HR analytics framework for a hypothetical company. Include key components such as data collection, analysis, and decision-making.

UNIT-II: HR BUSINESS PROCESS AND HR ANALYTICS (15 Hrs.)

Statistics and Statistical Modelling for HR Research and HR Decision-Making, HR Research Tools and Techniques, Data Analysis for Human Resources, Parametric and Non-Parametric Tests, HRIS Objectives and HRIS for HR Decision-Making, HR Metrics (Recruitment, Training and Development Function), HR Scorecard and HR Dashboards, HR Analytics as a Better Tool for HR Decisions, Compelling Reasons for HR Analytics

Exercises:
- Provide students with a dataset that includes various employee demographics (age, gender, years of experience, salary, etc.). Ask them to use a logistic regression model to predict whether an employee will leave the organization based on certain features.
- Provide a fictional dataset with details about employee turnover over the past few years (including factors like department, job role, tenure, and reasons for leaving). Ask students to analyze the data and identify any trends or correlations.
- Organize a **group discussion** on what metrics they believe are critical for an HR department to track (e.g., employee engagement, turnover rate, time to fill, etc.). Ask students to come up with examples of how specific HR metrics can align with overall business goals (e.g., reducing turnover can improve productivity and profitability).

UNIT-III: FORECASTING AND MEASURING HR VALUE PROPOSITIONS WITH HR ANALYTICS: Value Proposition and HR Decisions, Sustainability in HR Decisions , HR Analytics and HR Value Propositions, HR Optimization through HR Analytics, HR Forecasting, HR Plan and HR Analytics, Predictive HR Analytics

Exercises:
- Present a case study where a company faces an HR challenge, such as high turnover, low employee engagement, or recruitment issues. Ask students to use HR data (e.g., employee performance, tenure, engagement surveys) to identify patterns and propose data-driven solutions.
- Guide students through creating a simple predictive model in Excel using regression analysis or in Power BI using built-in analytics features. For instance, predict employee turnover based on factors like job satisfaction, salary, and performance.
- Divide students into teams and provide each team with a dataset related to employee performance, turnover, or recruitment. Ask them to analyze the data and make recommendations for improving HR practices. Each team presents their findings and recommendations.

UNIT-IV: HR ANALYTICS AND DATA : HR Data and Data Quality, HR Data Collection and Steps for data collection , Big Data for Human Resources, Transforming HR Data into HR Information, Process of Data Collection for HR Analytics, Data Collection for Effective HR Measurement, HR Reporting – types and forms of reporting, Data Visualization or HR Report Visualization.

Exercises:
- Provide students with a sample dataset with various quality issues (e.g., missing values, incorrect formats, duplicates). Have them identify and document these issues.
- Assign roles such as HR manager, data analyst, and department head. Present a scenario where the team needs to make a decision based on HR data (e.g., implementing a new training program

based on performance data). Each role contributes to the decision-making process based on their perspective and data.

- Assign each student or group a specific HR dataset and ask them to create visualizations. For example:

 A bar chart showing employee distribution by department.

 A pie chart illustrating the gender distribution within the company.

 A line graph tracking employee turnover over time.

UNIT-V: HR ANALYTICS AND PREDICTIVE MODELLING: Different Phases of HR Analytics or HR Predictive Modelling with examples, Data and Information for HR Predictive Analysis, Predictive Analytics Tools and Techniques, HR Analytics for Future, Artificial Intelligence and HR, Different Types of AI for HR Functions

Exercises:

- Divide students into groups and assign each group a different phase of HR analytics (e.g., data collection, analysis, reporting, action planning). Each group should research their assigned phase, prepare a presentation, and explain how it contributes to the overall HR analytics process.
- Walk students through popular predictive analytics tools like Python (with libraries such as scikit-learn), R, SAS, or Tableau. Show them how to build a simple predictive model.
- Create a simulation where students act as HR professionals using AI tools to screen resumes and conduct initial candidate assessments.

Reference Books:

1. Dipak Kumar Bhattacharyya - 2023. HR Analytics, Understanding Theories and Applications, 2nd edition, Wiley publication.

2. Vinod Kumar Patel, Deepali Soni, Abhishek Singhal, Dinesh Gupta – 2023. Fundamentals of HR Analytics, 2nd edition, INSC International Publisher .

3. Martin R Edwards and Kirsten Edwards – 2019, Predictive HR Analytics, 2nd edition, Kogan page publishers.

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MODEL QUESTION PAPER

MBA Business Analytics EXAMINATION

22ANDSL304: HR Analytics

Duration: 3 hours   **Maximum Marks: 70**

SECTION- A

Answer the following Questions   **5×4=20 Marks**

1a) Describe a short note on Predictive decision – making. (K1)

OR

1b) Relate the cause-and-effect relationship.   (K1)

2a) Explain about the HR Dashboard. (K2)

OR

2b) Summarize concept of Quartile deviation. (K2)

3a) Identify the HR value propositions. (K2)

OR

3b) Explain the concept of predictive HR analytics. (K2)

4a) Relate the data validity and reliability. (K3)

OR

4b) Write the use of Bigdata for HR analytics. (K3)

5a) Examine the concept of scenario analysis. (K4)

OR

5b) Outline the Five forces of future HR functions (K4)

SECTION - B

Answer the of the Following   **5X8=40 Marks**

6a) Explain the concept of HR analytics. How does it help in HR decision-making? (K2)

OR

6b) Discuss the process of aligning business to human resources. Why such alignment is necessary for HR analytics? (K2)

7a) What are the different HR research tools and techniques? (K1)

OR

7b) What is HR analytics? How it is different from HR metrics? (K1)

8a) Analyze value propositions in the context of HR decision-making. (K4)

OR

8b) Differentiate between HR forecasting and HR plan. How can HR analytics help in developing an HR plan? (K4)

9.a) Develop your recommended steps for HR data collection? (K5)

OR

9. b) Explain about the HR reporting? Prepare HR reports with suitable example. (K5)

10.a) Illustrate some of the examples of predictive analytics in the context of human resources. (K4)

OR

10.b) As an HR professional, what are the possible changes envisaged by you in future utilization of HR analytics? (K4)

SECTION-C (1 x 10=10 Marks)

Case study (Compulsory) / Problem / Algorithm / Use Case (K5)

11. HP's Flight Risk Score Through Predictive Analytics HP with 302,000 headcounts operating from several countries can be better defined as information technology major. Using predictive analytics, HP could come out with a predictive model to pre-assess which employee is likely to leave the job. This has been named as 'flight risk score'. With this score value, human resources can infer which employees are planning to resign and accordingly can initiate an appropriate action to retain them. This way HP could also reduce the cost of new sourcing of manpower and the cost of training. Potential savings that the company could make from the flight risk score goes beyond USD 300 million. Like a tracking signal, when the flight risk scores reach 40 percent, the managers are warned to get ready for intervention plans, as the probability of employees leaving the organization increases with higher score values. The company could see that with 75 percent flight risk scores employees are almost sure to quit. Flight risk scores assessment process started by the company with mathematical calculation of each employee's loyalty, based on two years' data on compensation, raises, job ratings, job rotations and so on. Tracking these data for each employee, the company could identify possible defectors. Interestingly, HP could observe addressing the issues of defectors with promotion did not always work in the company, and this was more relevant for the sales people, although the effect of promotions for retention of other cadre of employees was positive. For sales people, compensation could work as a possible mediating factor for retention. Further study of modalities could confirm that with higher compensation, more raises and better performance ratings, employees are likely to continue with their jobs.

Question: Emulating HP's example of 'flight risk score', explain how a large manufacturing organization in India can predict their talent attrition.