Post Graduate Diploma in Business Analytics

(PGDBA)

(w.e.f Session 2019-20)

Scheme of Examination

Paper Code	Nomenclature of Paper	Total Marks	External	Internal	Time
PGDBA-101	Statistics For Analytics	100	80	20	3 Hrs
PGDBA-102	Financial Modeling and Analytics	100	80	20	3 Hrs
PGDBA-103	Marketing Research and Analytics	100	80	20	3 Hrs
PGDBA-104	HR Analytics	100	80	20	3 Hrs
PGDBA-105	Data Mining and Visualization	100	80	20	3 Hrs
PGDBA-106	Training Report and Comprehensive Viva-Voce	100	50+50	-	

PGDBA-101   **Statistics for Analytics**

Max. Marks 100
External: 80
Internal: 20
Time 3 Hours

Note: Note: The paper setter is required to set nine questions in all. The first questions will be based on the entire syllabus and will be comprising of four short answer type questions of five marks each. Question no 2 to 9 shall carry 15 marks each. For the students the first question will be compulsory and four questions will be attempted from remaining questions.

Course Objective: After learning this course the learners will be able to understand the relevance of statistics in the functional areas of business- Accounting, Finance, Information systems, Marketing Management and gain knowledge on how to use excel spread sheets and focus on interpretation of results.

Course Contents:

Statistical Thinking and Definition of Statistics - Basic Statistical Terms – Variable Type and Data Measurement Scales. Overview of Statistical Methods - Sampling and Sampling Methods – Presenting, Data in Tables and Charts.

Measures of Central Tendency - Measures of Dispersion - Measures of Shape - Examining Data Distribution, Types of Probability - Rules / Conditions of Probability - Probability Distributions, The Normal Distribution - Normality check - Using Excel for Statistical Analysis -Using R for Descriptive Analysis

REFERENCES

1. Levine, Stephan, Krehbiel and Berenson., "*Statistics for Managers using Microsoft excel*", PHI Learning Private Limited, 2010.

2. Dr. Deepak Chawla, Dr. Neena Sondhi., "*Research Methodology Concepts and Cases*", Vikas Publishing House Private Limited, 2011.

3. Gerald Keller., "*Managerial Statistics*", Cengage Learning, 2011.

4. Arora P.N., "*Managerial Statistics*", S.Chand Limited, 2009.

5. Dr. Srivastava T.N., "*Statistics for Management*", Tata McGraw Hill Publishing Company, 2008.

PGDBA-102 **Financial Modeling and Analytics**

Max. Marks: 100
External: 80
Internal: 20
Time 3 Hours

Note: Note: The paper setter is required to set nine questions in all. The first questions will be based on the entire syllabus and will be comprising of four short answer type questions of five marks each. Question no 2 to 9 shall carry 15 marks each. For the students the first question will be compulsory and four questions will be attempted from remaining questions.

Course Objective: The objective of this course is to develop an understanding of financial modeling science techniques and their role in managerial decision—making.

Course Contents:

Corporate Financial Statements Spreadsheet skills: Organizing and creating spreadsheets; entering and formatting data values; entering expressions for calculating values; linking worksheets; splitting screens to facilitate working between several worksheets. Financial management skills: Understanding the three key financial statements (i.e., a company's income statement, balance sheet, and cash flow statement) and the relationships between the various items on them.

Analysis of Financial Statements Spreadsheet skills: Using logical IF statements; using conditional formatting to call attention to conditions that need correcting; pasting an Excel document into a Word document. Financial management skills: Analyzing the year-to-year changes in financial statements and various financial ratios; performing vertical analysis of financial statements; using financial ratios to benchmark a company's performance against competitors; inserting spreadsheet results into company reports.

Forecasting Annual Revenues Spreadsheet skills: Creating, validating, and using linear, quadratic, cubic, and exponential regression models to fit the trends of historical data; creating various types of charts (e.g., scatter diagrams, forecast charts, error patterns, and downside risk curves); estimating the accuracy of forecasts; expressing forecast accuracy in terms of confidence limits and downside risk curves. Financial management skills: Making forecasts; recognizing the difference between valid and invalid forecasting models; handling the risks inherent in forecasts; adjusting regression models for changes in trends.

Suggested Readings:

1.   Day Alastair L. Mastering Financial Modelling in Microsoft Excel, Pearson 2nd edition

2.   Benninga Simon, Financial Modelling.

3.   Pignataro Paul, Financial Modelling and Valuation: A Practical Guide to Investment Banking And Private Equity.

4.   Rees Michael, Financial Modelling in Practice.

PGDBA-103   Marketing Research and Analytics

Max. Marks: 100
External: 80
Internal: 20
Time 3 Hours

Note: Note: The paper setter is required to set nine questions in all. The first questions will be based on the entire syllabus and will be comprising of four short answer type questions of five marks each. Question no 2 to 9 shall carry 15 marks each. For the students the first question will be compulsory and four questions will be attempted from remaining questions.

Course Objective: The objective of this course is to develop an understanding of marketing research techniques and their role in marketing business decision.

Course Contents:
Introduction to Marketing Research and Analytics - Meaning and Role of Research and Analytics in Marketing. Scope of Marketing Research and Analytics - Consumer Research and Analytics , Market Potential Research and Analytics , Image Research and Analytics,Product Research and Analytics, Pricing research and Analytics, Distribution Research and Analytics, Advertising Research and Analytics. Types of Marketing Research and Their Applications- Exploratory Research, Descriptive Research and Experimental Research.

Step by Step Execution of Research, Measurement and Scaling Techniques. Data Collection and Sampling Design

Big Data in Marketing and **Marketing Intelligence.**

SPSS based Marketing Analytics Techniques-
Conjoint Analysis, Cluster Analysis, Factor Analysis, Regression Analysis, Perceptual Maps Text Analytics.

Suggested Readings:
1. Cooper, Donald R and Pamela S Schindler, Marketing Research- Concepts and Cases, Tata McGraw Hill Publishing Company Limited, New Delhi.
2. Malhotra, Naresh K and S Dash, Marketing Research- An Applied Orientation, Pearson.
3. Boud, Harper W, Westfall, Ralph L and Stanley F Stasch, Marketing Research- Text and Cases, RD Irwin
4. Green, Paul E and Donald S Tull, Research for Marketing Decisions, PHI.
5. Beri, GC, Marketing Research, Tata McGraw Hill, New Delhi.

Lesson Plan

PGDBA 103- Marketing Research and Analytics

Chapter 1- Marketing Research- Meaning, Role and Scope.

chapter 2- Consumer Research

chapter 3- Market Potential and Image Research

chapter 4- Product and Pricing Research

chapter 5- Distribution and Advertising Research

chapter 6- Types of Marketing Research and Their Applications

chapter 7- Marketing Research Process

chapter 8- Measurement and Scaling Techniques

chapter 9- Data Collection and Sampling Design

chapter 10- Role of Analytics in Marketing – Big Data and Marketing Intelligence

chapter 11- Conjoint Analysis

chapter 12- Cluster Analysis

chapter 13- Factor Analysis

chapter 14- Regression Analysis

chapter 15- Perceptual Maps and Text Analytics

PGDBA-104   HR Analytics

Max. Marks: 100
External: 80
Internal: 20
Time 3 Hours

Note: Note: The paper setter is required to set nine questions in all. The first questions will be based on the entire syllabus and will be comprising of four short answer type questions of five marks each. Question no 2 to 9 shall carry 15 marks each. For the students the first question will be compulsory and four questions will be attempted from remaining questions.

Course Objective: The objective of this course is to develop an understanding of the HR Practices techniques and their role in enchasing the competitiveness of the workforce.

Course Contents:

Introduction to HR Analytics: Concept, Perspectives, Evolution. Need of HR Analytics, Changing HR Dynamics. Analytic Capabilities, Analytic Value Chain, Application of HR Analytics. HR Metrics; HR Scorecard; HR Benchmarking.

Preparation for HR Analytics: Review existing HR Analytics Frameworks and HR Models, Identify the Purpose/Aims and Scope of Analytics, Devise Methodology for using it, preparing for an analytics Unit, Develop Analytics Culture

Requirements for HR Analytics: Engaging with Stakeholders, Work with Consultants and Coaches, Technological Know-how, Build Analytics Team, Involvement of Consultant and Coaches.

Understanding Data: Data Quality, Data Types, Data Governance, Resolving Data Issues: Efficiency Measures, Effectiveness Measures and Business Outcome Measures.

Developing Analytics Culture: Importance of Leadership; Overcoming Resistance to HR Analytics; Communicate with Storytelling and Visualisation.

Execution & Reporting: Determining the Key Performance Indicators; Analyse and Report the Data; Relationships, Optimisation and Predictive Analytics; Interpreting the Results,

Analysis for Insights: Use of Trend Analysis, Regression, Correlation, Benchmarking, Workforce Modelling, Structural Equation Modelling for predictive analysis.

Future of HR Analytics: New Opportunities & Challenges for HR in Future, Emerging Data Sources, Evolving Technology.

Suggested Readings:
1. Gene Pease, Boyce Byerly and Jac Fitz-enz, Human Capital Analytics: How to Harness the Potential of Your Organization's Greatest Asset, John Wiley & Sons.
2. HR Analytics: The What, Why and How, Tracey Smith. WILEY & SAS Business)
3. HR Analytics: Understanding Theories and Applications, Dipak Kumar Bhattacharyya

Lesson Plan

PGDBM- 104 HR Analytics

1. Introduction to HR Analytics: Concept, Perspectives, Evolution. Need of HR Analytics.
2. Changing HR Dynamics. Analytic Capabilities, Analytic Value Chain, Application of HR Analytics.
3. HR Metrics;
4. Balanced Scorecard and HR Scorecard;
5. HR Benchmarking.
6. HR Analytical Frameworks and HR Models,
7. Purpose/Aims and Scope of Analytics, Developing Methodology for using it, Preparing for an analytics Unit,
8. Engaging with Stakeholders, Consultants and Coaches,
9. Technological Know-how for HR Analytics
10. Development of Analytics Team.
11. Understanding Data: Data Quality, Data Types, Data Governance, Resolving
12. Data Issues: Efficiency Measures, Effectiveness Measures and Business Outcome Measures.
13. Developing Analytics Culture: Importance of Leadership; Overcoming Resistance to HR Analytics; Communicate with Storytelling and Visualisation.
14. Execution & Reporting: Determining the Key Performance Indicators; Analyse and Report the Data; Relationships, Optimisation and Predictive Analytics; Interpreting the Results,
15. Analytical Techniques for Insights: Use of Trend Analysis, Regression, Correlation, Benchmarking, Workforce Modelling, Structural Equation Modelling for Predictive analysis.
16. Future of HR Analytics: New Opportunities & Challenges for HR in Future, Emerging Data Sources, Evolving Technology.
17. Case Studies on Analytics

PGDBA-105   Data Mining and Visualization

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Max. Marks: 100
External: 80
Internal: 20
Time 3 Hours

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Note: Note: The paper setter is required to set nine questions in all. The first questions will be based on the entire syllabus and will be comprising of four short answer type questions of five marks each. Question no 2 to 9 shall carry 15 marks each. For the students the first question will be compulsory and four questions will be attempted from remaining questions.

Objectives: The Objective of the course is to familiarize the students with tools and techniques for Data Data Mining and visualization.

Course Contents:

Introduction to data mining (DM) :Kind of data, DM Functionalities, Classification of DM Systems, Issues in DM,. What is Data warehousing (DW)?
Multidimensional data model: Data cubes, Stars, snowflakes and fact constellations, Defining schemas, concept hierarchies, OLAP, Data Warehouse Architecture, Types of OLAP servers: ROLAP versus MOLAP versus HOLAP, Steps for design and construction, Three-tier Data

Data Warehouse Implementation: Efficient computation of Data cubes, Indexing OLAP Data and efficient processing of OLAP queries, Back-end tools and utilities

Data Mining Primitives, Languages and System Architectures: Task relevant data, Kind of Knowledge to be mined, DM Query languages: Syntax, Designing GUI, Architectures of DM Systems, Concept of Cluster Analysis. , Application and trends in Data mining, Data Mining for Financial data analysis, Data Mining for retail industry, Data mining for telecommunication industry

Data Visualization techniques (for measurement and categorical data)-Interactive visualization techniques-Common misuses of data visualization- Techniques for Statistical Inference – the 95% Confidence Interval-General principles involving test of statistical significance – Null Hypothesis, p-value and interpreting test outcomes. Data visualization; Association between variables; Insights from reports.

Suggested Readings:

1. Barry Devlin: Data Ware House: From Architecture to Implementation, AddissionWeslay.
2. Alex Berson, Stephen Smith, Kurt Threarling;Building Data Mining Applications for CRM Tata McGraw Hill.
3. Alex Berson, Stephen Smith;Data Warehousing, Data Mining and OLAP, Tata McGraw Hill.
4. Michael J.A.Berry, Data Mining Techniques for marketing sales and Customer Support, Gordon Linoff.
5. Han, Jiawei;Datamining:Concepts and techniques, Harcourt.
6. Pujari,ArunK,Data, Mining Techniques, Hyderabad University Press.

PGDBA-106   **Training Report and Comprehensive Viva-Voce**

Total Marks 100 External
Training Report: 50 Marks
Viva-Voce: 50 Marks

Note: Every student would be required to undertake training of 3 to 4 weeks in a well established reputed company regarding use of Business Analytics in corporate decision making. The training report encompassing the learning during training would be submitted upto 30th April. Prior approval regarding topic of the training and company where training would be undertaken is must from the course coordinator.

Comprehensive Viva Voce will be conducted by an examiner appointed by the University.