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|--|---|--------------------------|--|---|
| <b>Semester:</b> VII   |   |                          |  |   |
| <b>Course Title:</b> ADVANCED RESEARCH METHODOLOGY   |   |                          |  |   |
| <b>Course Code:</b> C4BC230721T  |   |                          | <b>Credits:</b> 6                      |   |
| <b>Category:</b> MAJOR   |   |                          |  |   |
| <b>Theory/Practical/Composite:</b> Theory  |   |                          |  |   |
| <b>No. of Modules:</b> 6   |   |                          |  |   |
| <b>Course Overview:</b> The course introduces the scopes and the challenges of advanced research, different elements of research process, research design, data processing, data visualization and importance of research in managerial decision making.   |   |                          |  |   |
| <b>Course Outcome:</b> After learning this course, the students will be able to:   |   |                          |  |   |
| 1. Recall the meaning, objectives and key features of Scope and Role of Business Research in decision making, Research Methodology and Business Data Analytics. List the Sources of Data in Business Research. Recognize the types of observational Techniques and Analytics, Questionnaires and Scales of Measurement and identify the sampling frame characteristics of a Good Sample while remembering the uses and features of a good Research Design. |   |                          |  |   |
| 2. Summarize Characteristics of Good Hypothesis and Business Intelligence. Explain the concept, importance and scope of Research Design and Business Data Analytics. Describe the Pros and Cons of primary and secondary data, Census and Sample Survey and interpret the types of questions, Sampling and Scaling technique.  |   |                          |  |   |
| 3. Execute the steps in Research Process and Data Mining, demonstrate the applications of Business Research and Analytical Models, implement the Classification of interviewing techniques and solve sample size and use Online Analytical Processing.   |   |                          |  |   |
| 4. Compare types of Business Research and examine relative merits and pitfalls of Observation vs. Survey method. Analyze case studies, analytical Techniques and Emerging Trends in Data mining. Compare Sampling Error and Non-Sampling Error, justify importance of Reliability and Validity in Research, organize the journey of Exploratory Data Analysis, attribute Practical Considerations in Sampling and Sample Size.                             |   |                          |  |   |
| 5. Justify the research objectives, judge the criteria for evaluating secondary sources of data and argue the ethical usage of data.   |   |                          |  |   |
| 6. Create motivation for the scope and role of business research in decision making, construct variables and formulate research problems and develop different hypotheses.   |   |                          |  |   |
| <b>Prerequisites:</b> Basics of Statistics   |   |                          |  |   |
| <b>SYLLABUS</b>  |   |                          |  |   |
| <b>Unit/Module with topic name</b>   | <b>Content</b>  | <b>Number of Classes</b> | <b>CO Mapping</b>                      | <b>Cognitive Level</b>  |
| I. Nature and Scope of Business Research   | Meaning - Nature - Objectives – Motivation – Key Features – Scope and Role of Business Research in Decision Making. Terminology of Business Research, Applications of Business Research. Understanding the Language of Research – Constructs –Variables. Steps in the Research Process. Preparation of Research Proposal. Types of Business Research. Nature and Scope of Research Methodology–Formulation of Research Problem, Research Objectives – Different Hypotheses, Characteristics of Good Hypothesis. | 08                       | CO1<br>CO2<br>CO3<br>CO4<br>CO5<br>CO6 | K1 (REMEMBER)<br>K2<br>(UNDERSTAND)<br>K3 (APPLY)<br>K4 (ANALYSE)<br>K5 (EVALUATE)<br>K6 (CREATE) |

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| II. Research Design                         | Research Design: Concept- Uses of Research Design - Importance of Research Design – Features of a Good Research Design. Types: Exploratory, Descriptive, Correlational, Causal, Explanatory, Mixed Methods, Longitudinal, and Case Study. Secondary Data: Advantages & Disadvantages of Secondary Data, Criteria for Evaluating Secondary Sources, Secondary Sources of Data in Indian Context. Business Report Writing (using Secondary Data).   | 08 | CO1<br>CO2<br>CO4<br>CO5<br>CO6 | K1 (REMEMBER)<br>K2<br>(UNDERSTAND)<br>K4 (ANALYSE)<br>K5 (EVALUATE)<br>K6 (CREATE) |
| III. Sources and Collection of Primary Data | Primary Data: Concept, Sources, Pros and Cons, Applicability in Research, Observation vs. Survey – Relative Merits and Pitfalls. Types of Observational Techniques, Classification of Interviewing Techniques – Depth Interviews, Focus Groups and Projective Techniques. Questionnaire Design – Types of Questionnaires (structured vs. unstructured, disguised vs. non-disguised); Types of Questions (open-ended, dichotomous, multiple-choice questions, biases in questionnaire design – leading questions, loaded questions, double – barreled questions). Census vs. Sample Survey – Pros and Cons. Importance of Reliability and Validity in Research. Different Measures of Reliability – Sampling Validity. Business Report Writing (using Primary Data). | 10 | CO1<br>CO2<br>CO3<br>CO4<br>CO6 | K1 (REMEMBER)<br>K2<br>(UNDERSTAND)<br>K3 (APPLY)<br>K4 (ANALYSE)<br>K6 (CREATE)    |
| IV. Sampling                                | Concepts of Statistical Population – Sample - Sampling Frame – Sampling Error and Non-Sampling Error, Non-Response Bias, Characteristics of a Good Sample. Probability Sampling: Simple Random Sampling, Systematic Sampling, Stratified Random Sampling, Multistage Sampling. Non-Probability Sampling: Convenience Sampling, Purposive Sampling, Snowball Sampling. Determining Size of the Sample – Practical Considerations in Sampling and Sample Size.  | 12 | CO1<br>CO2<br>CO3<br>CO4        | K1 (REMEMBER)<br>K2<br>(UNDERSTAND)<br>K3 (APPLY)<br>K4 (ANALYSE)                   |
| V. Measurement and Scaling                  | Primary Scales of Measurement – Nominal, Ordinal, Interval and Ratio. Scaling Techniques and its Types - Paired Comparison, Rank Order Scale, Itemized Ratings Scale, Summated Scale, Semantic Differential Scale, and Likert Scale.  | 6  | CO1<br>CO2                      | K1 (REMEMBER)<br>K2<br>(UNDERSTAND)   |

|                             |   |    |                                 |  |
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| VI. Business Data Analytics | Business Data Analytics: Basic Concepts and Scope; Evolution; Types of Analytics (Descriptive, Diagnostic, Predictive, Prescriptive, Adaptive); Use-Cases of Analytical Models (Finance/Marketing/ HR); Sources of Data in Business Research; Journey of Exploratory Data Analysis (EDA): From Raw data to Business Insights; Data Analytics Tools; Business Intelligence: Key Performance Indicators; Analytical Techniques; Online Analytical Processing (OLAP); Data Mining; Ethical Usage; Emerging Trends. | 16 | CO1<br>CO2<br>CO3<br>CO4<br>CO5 | K1 (REMEMBER)<br>K2<br>(UNDERSTAND)<br>K3 (APPLY)<br>K4 (ANALYSE)<br>K5 (EVALUATE) |
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### Textbooks

1. Cooper, R. D., Schildler, P. S., & Sharma, J. K. (2017). *Business Research Methods* (11 ed.). McGraw Hill Education.
2. Deepak Chawla and Neena Sondhi, *Research Methodology: Concepts and Cases*, Vikas Publishing House, India.
3. Adams, J., Khan, H., & Raeside, R. (2014). *Research methods for business and social science*. 80vxz.
4. Schniederjans, M. J., Schniederjans, D. G., & Starkey, C. M. (2014). *Business analytics principles, concepts, and applications: what, why, and how*. Pearson Education.
5. Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & Sons.
6. Dinesh Kumar, U. (2017). *Business analytics: The science of data-driven decision making*. Wiley.

### Suggested readings

1. Amalendu Bhunia, "Diving Deep into Business Research", Techno World, 2024.
2. Alan Bryman & Emma Bell, "Business Research Methods", Oxford University Press, 2011.
3. Ott, R. L., & Longnecker, M. (2010). *An introduction to statistical methods and data analysis*. Cengage Learning Inc..
4. Richard A. Johnson & Dean W. Wichern, "Applied Multivariate Statistical Analysis", Prentice Hall International Inc.
5. Laursen, G. H., & Thorlund, J. (2016). *Business analytics for managers: Taking business intelligence beyond reporting*. John Wiley & Sons.
6. Camm, J. D., Cochran, J. J., Fry, M. J., Ohlmann, J. W., & Anderson, D. R. (2018). *Business analytics: Data analysis & decision making*.

### Web Resources

1. Blumberg, B., Cooper, D., & Schindler, P. (2014). *EBOOK: Business research methods*. McGraw Hill.
2. <https://www.london.ac.uk/study/courses/moocs/understanding-research-methods>
3. <https://library.bu.edu/business-case-studies/open>
4. [https://onlinecourses.nptel.ac.in/noc23\\_ge36/preview](https://onlinecourses.nptel.ac.in/noc23_ge36/preview)
5. <https://www.geeksforgeeks.org/data-analysis/what-is-exploratory-data-analysis/>
6. <https://www.ibm.com/think/topics/business-analytics>
7. <https://www.pwc.com/us/en/services/consulting/business-transformation/data-analytics.html>
8. <https://www.geeksforgeeks.org/data-analysis/data-mining-techniques/>

### Course outcomes (COs) and Cognitive Level Mapping

| COs | CO Description  | Cognitive levels |
|-----|---|------------------|
| CO1 | Recall the meaning, objectives and key features of Scope and Role of Business Research in decision making, Research Methodology and Business Data Analytics. List the Sources of Data in Business Research. Recognize the types of observational Techniques and Analytics, Questionnaires and Scales of Measurement and identify the sampling frame characteristics of a Good Sample while remembering the uses and features of a good Research Design. | K1 (Remember)    |
| CO2 | Summarize Characteristics of Good Hypothesis and Business Intelligence. Explain the concept, importance and scope of Research Design and Business Data Analytics. Describe the Pros and Cons of primary and secondary data, Census and Sample Survey and interpret the types of questions, Sampling and Scaling technique.  | K2 (Understand)  |
| CO3 | Execute the steps in Research Process and Data Mining, demonstrate the applications of Business Research and Analytical Models, implement the Classification of interviewing techniques and solve sample size and use Online Analytical Processing.   | K3 (Apply)       |
| CO4 | Compare types of Business Research and examine relative merits and pitfalls of Observation vs. Survey method. Analyze case studies, analytical Techniques and Emerging Trends in Data mining. Compare Sampling Error and Non-Sampling Error, justify importance of Reliability and Validity in Research, organize the journey of Exploratory Data Analysis, attribute Practical Considerations in Sampling and Sample Size.                             | K4 (Analyse)     |
| CO5 | Justify the research objectives, criteria for evaluating secondary sources of data and judge the ethical usage of data.   | K5 (Evaluate)    |
| CO6 | Create motivation for the scope and role of business research in decision making, construct variables and formulate research problems and develop different hypotheses.   | K6 (Create)      |