# LECTURE PLAN



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| **Institute/Department** | UNIVERSITY INSTITUTE OF COMPUTING (UIC) | **Program** | **Master of Computer Applications (MC305)** |
| **Master Subject Coordinator Name:** | Urvashi | **Master Subject Coordinator E-Code**: | **E12312** |
| **Course Name** | Business Analytics | **Course Code** | **22CAH-703** |

| Lecture | Tutorial | Practical | Self Study | Credit | Subject Type |
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| Course Type | Course Category | Mode of Assessment | Mode of Delivery |
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| N.A | Graded (GR) | Hybrid | Hybrid (HYB) |

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| Mission of the Department | M1. To provide innovative learning centric facilities and quality-oriented teaching learning process for solving computational problems.<br>M2. To provide a framework through Project Based Learning to support society and industry in promoting a multidisciplinary activity.<br>M3. To develop crystal clear evaluation system and experiential learning mechanism aligned with futuristic technologies and industry.<br>M4. To provide doorway for promoting research, innovation and entrepreneurship skills in collaboration with industry and academia.<br>M5. To undertake societal activities for upliftment of rural/deprived sections of the society. |
| Vision of the Department | To be a Centre of Excellence for nurturing computer professionals with strong application expertise through experiential learning and research for matching the requirements of industry and society instilling in them the spirit of innovation and entrepreneurship. |

| Program Educational Objectives(PEOs) | |
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| PEO1 | Establish a well-fortified computing foundation of successful professionals by applying computing fundamentals and domain-specific knowledge, demonstrating their innovative skills and considering social and environmental concerns. |
| PEO2 | Undertake successful implementation of ethical solutions as an individual or a member or a leader of a team by investigating, analyzing, formulating and solving complex computing problems in multidisciplinary approaches using modern tools. |
| PEO3 | Enhance professionalism and ethical attitude in the profession while communicating with local, national, and foreign peers, bound within regulations and leading to lifelong learning. |
| PEO4 | Promote awareness for uplifting health, safety, legal, environmental, ethical and cultural diversity issues for serving the society. |

| Program Specific OutComes(PSOs) | |
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| PSO1 | Analyze their abilities in systematic planning, developing, testing and executing complex computing applications in field of Social Media and Analytics, Web Application Development and Data Interpretations. |
| PSO2 | Apprise in-depth expertise and sustainable learning that contributes to multi-disciplinary creativity, permutation, modernization and study to address global interest. |

| Program OutComes(POs) | |
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| PO1 | Apply mathematics and computing fundamental and domain concepts to find out the solution of defined problems and requirements. (Computational Knowledge) |
| PO2 | Use fundamental principle of Mathematics and Computing to identify, formulate research literature for solving complex problems, reaching appropriate solutions. (Problem Analysis) |
| PO3 | Understand to design, analyze and develop solutions and evaluate system components or processes to meet specific need for local, regional and global public health, societal, cultural, and environmental systems. (Design/Development of Solutions) |
| PO4 | Use expertise research-based knowledge and methods including skills for analysis and development of information to reach valid conclusions. (Conduct Investigations of Complex Computing Problems) |
| PO5 | Adapt, apply appropriate modern computing tools and techniques to solve computing activities keeping in view the limitations. (Modern Tool Usage) |
| PO6 | Exhibiting ethics for regulations, responsibilities and norms in professional computing practices. (Professional Ethics) |

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| PO7 | Enlighten knowledge to enhance understanding and building research, strategies in independent learning for continual development as computer applications professional. (Life-long Learning) |
| PO8 | Establishing strategies in developing and implementing ideas in multi- disciplinary environments using computing and management skills as a member or leader in a team. (Project Management and Finance) |
| PO9 | Contribute to progressive community and society in comprehending computing activities by writing effective reports, designing documentation, making effective presentation, and understand instructions. (Communication Efficacy) |
| PO10 | Apply mathematics and computing knowledge to access and solve issues relating to health, safety, societal, environmental, legal, and cultural issues within local, regional and global context. (Societal and Environmental Concern) |
| PO11 | Gain confidence for self and continuous learning to improve knowledge and competence as a member or leader of a team. (Individual and Teamwork) |
| PO12 | Learn to innovate, design and develop solutions for solving real life business problems and addressing business development issues with a passion for quality competency and holistic approach. (Innovation and Entrepreneurship) |

Text Books

| Sr No | Title of the Book | Author Name | Volume/Edition | Publish Hours | Years |
|---|---|---|---|---|---|
| 1 | Mining of Massive Datasets | AnandRajaraman and Jeff Ullman | 5 | Cambridge University Press | 2010, 2011, 2012, 2013, 2014 |
| 2 | Hadoop in Practice | Alex Holmes | 2 | Manning Press, Dreamtech Press | 2012 |
| 3 | Hadoop in Action | Chuck Lam | 2 | Dream tech Press | 2012 |

Reference Books

| Sr No | Title of the Book | Author Name | Volume/Edition | Publish Hours | Years |
|---|---|---|---|---|---|
| 1 | Taming The Big Data Tidal Wave: Finding Opportunities In Huge DataStreams With Advanced Analytics | Bill Franks | 3 | Wiley | 2013 |
| 2 | Hadoop: The Definitive Guide | Tom White | 3 | O'Reilly Media, Inc | 2014 |

Course OutCome

| SrNo | OutCome |
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| CO1 | Apply the concepts and components of Data Analytics |
| CO2 | Interpret predictive analytics fundamentals |
| CO3 | Analyze complex problems in terms of analytical models |
| CO4 | Implement appropriate analytical methods to find solutions. |
| CO5 | Design technical information in terms of speech, writing and graphically |

Lecture Plan Preview-Theory

| Unit No | LectureNo | ChapterName | Topic | Text/ Reference Books | Pedagogical Tool** | Mapped with CO Numer (s) |
|---|---|---|---|---|---|---|
| 1 | 1 | Data Analytics | Introduction to Data Analytics | T-Mining of Massive Datasets | PPT | CO1 |
| 1 | 2 | Data Analytics | Data Analytics Overview | T-Mining of Massive Datasets | PPT | CO1 |
| 1 | 3 | Data Analytics | Data Analyst and its Responsibilities | T-Mining of Massive Datasets | PPT | CO1 |
| 1 | 4 | Data Analytics | Types of Data Analytics | T-Mining of Massive Datasets | PPT | CO1 |
| 1 | 5 | Data Analytics | Descriptive Analytics | T-Mining of Massive Datasets | PPT | CO2 |

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| 1 | 6 | Data Analytics | Functionalities of Descriptive Analytics | T-Mining of Massive Datasets | PPT | CO2 |
| 1 | 7 | Data Analytics | Diagnostic Analytics | T-Mining of Massive Datasets | PPT | CO2 |
| 1 | 8 | Data Analytics | Functionalities of Diagnostic Analytics | T-Mining of Massive Datasets | PPT | CO2 |
| 1 | 9 | Data Analytics | Predictive Analytics | T-Mining of Massive Datasets | PPT | CO2 |
| 1 | 10 | Data Analytics | Functionalities of Predictive Analytics | T-Mining of Massive Datasets | PPT | CO2 |
| 1 | 11 | Data Analytics | Prescriptive Analytics | T-Mining of Massive Datasets | PPT | CO2 |
| 1 | 12 | Data Analytics | Functionalities of Prescriptive Analytics | T-Mining of Massive Datasets | PPT | CO2 |
| 1 | 13 | Data Analytics | Data Visualization for Decision Making | T-Mining of Massive Datasets | PPT | CO2 |
| 1 | 14 | Data Analytics | Concatenate function IF Function, Nested IF, AND, OR, NOT | T-Mining of Massive Datasets | PPT | CO2 |
| 1 | 15 | Data Analytics | IFERROR, SUMIF, AVERAGEIF, COUNTIF | T-Mining of Massive Datasets | PPT | CO2 |
| 1 | 16 | Excel Basics | Introduction to Data Formats | T-Mining of Massive Datasets | PPT | CO3 |
| 1 | 17 | Excel Basics | Types of Data Formats | T-Mining of Massive Datasets | PPT | CO3 |
| 1 | 18 | Excel Basics | Filtering | T-Mining of Massive Datasets | PPT | CO3 |
| 1 | 19 | Excel Basics | Conditional Formatting | T-Mining of Massive Datasets | PPT | CO3 |
| 1 | 20 | Excel Basics | V-lookup | T-Mining of Massive Datasets | PPT | CO3 |
| 1 | 21 | Excel Basics | H-Lookup | T-Mining of Massive Datasets | PPT | CO3 |
| 1 | 22 | Excel Basics | Sorting | T-Mining of Massive Datasets | PPT | CO3 |
| 1 | 23 | Excel Basics | Pivoting | T-Mining of Massive Datasets | PPT | CO3 |
| 1 | 24 | Distributed mode | Local Mode and functioning | T-Mining of Massive Datasets | PPT | CO4 |
| 1 | 25 | Distributed mode | Pseudo Distributed Mode and functioning | T-Mining of Massive Datasets | PPT | CO4 |
| 2 | 26 | Introduction to Database | Introduction to SQL | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 27 | Introduction to Database | Introduction to Database | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 28 | Introduction to Database | SQL SELECT Statement | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |
| 2 | 29 | Introduction to Database | Retrieve Data using the SQL SELECT Statement | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |
| 2 | 30 | Introduction to Database | Learn to Sort Data | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |
| 2 | 31 | Introduction to Database | Learn to Restrict Data | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |
| 2 | 32 | Introduction to Database | Usage of Single-Row Functions to Customize Output | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |
| 2 | 33 | Introduction to Database | Invoke Conversion Functions and Conditional Expressions | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |
| 2 | 34 | Introduction to Database | Aggregate Data Using the Group Functions | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |
| 2 | 35 | DML, DDL, Joins | Display Data from Multiple Tables Using Joins | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |
| 2 | 36 | DML, DDL, Joins | Use Sub-Queries to Solve Queries | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |
| 2 | 37 | DML, DDL, Joins | The SET Operators | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |

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| 2 | 38 | DML, DDL, Joins | Data Manipulation Statements | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |
| 2 | 39 | DML, DDL, Joins | Difference in DML and DDL | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 40 | DML, DDL, Joins | Use of DDL Statements to Create and Manage Tables, Other Schema Objects | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 41 | DML, DDL, Joins | Control User Access | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |
| 2 | 42 | DML, DDL, Joins | Schema and Object definition | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 43 | DML, DDL, Joins | Management of Schema Objects | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 44 | DML, DDL, Joins | Manage Objects with Data Dictionary | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 45 | DML, DDL, Joins | Types of Views | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 46 | DML, DDL, Joins | Data Sets | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 47 | DML, DDL, Joins | Manipulate Large Data Sets | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 48 | SQL | Installation of Oracle/SQL | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 49 | Introduction to Database | To create, alter, and drop databases, tables, views, functions and indexes. | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 50 | DML, DDL, Joins | Joins in SQL | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 3 | 51 | Introduction to Tableau | Start Page and Connecting to Excel Files | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 52 | Introduction to Tableau | Connecting to Text Files | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 53 | Introduction to Tableau | Connect to Microsoft SQL Server | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 54 | Introduction to Tableau | Joining Tables, Data Blending | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 55 | Tableau Basic Reports And Charts | Parameters, Grouping, Edit Groups | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 56 | Tableau Basic Reports And Charts | Set, Combined Sets | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 57 | Tableau Basic Reports And Charts | Creating a First Report | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 58 | Tableau Basic Reports And Charts | Data Labels and Create Folders | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 59 | Tableau Basic Reports And Charts | Sorting Data | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 60 | Tableau Basic Reports And Charts | Add Totals, Sub Totals and Grand Totals to Report | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO5 |
| 3 | 61 | Tableau Basic Reports And Charts | All types of charts | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO3 |
| 3 | 62 | Tableau Basic Reports And Charts | Calculated Fields | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO3 |
| 3 | 63 | Tableau Basic Reports And Charts | Basic Approach to Calculate Rank | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO3 |

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| 3 | 64 | Tableau Basic Reports And Charts | Calculating Running Total | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 65 | Tableau Basic Reports And Charts | Quick Filters, Filters on Dimensions, Conditional Filter, Top and Bottom Filters, Filters on Measures | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 66 | Tableau Basic Reports And Charts | Context Filters, Slicing, Filters, Data Source Filters, Extract Filters | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 67 | Tableau Dashboards | Create a Dashboard Format and Dashboard Layout | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO5 |
| 3 | 68 | Tableau Dashboards | Create a Device Preview of a Dashboard | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO5 |
| 3 | 69 | Tableau Dashboards | Create Filters on Dashboard | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 70 | Tableau Dashboards | Dashboard Objects | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 71 | Tableau Dashboards | Create a Story | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO3 |
| 3 | 72 | Tableau Dashboards | Publishing Tableau | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO5 |
| 3 | 73 | Introduction to Tableau | Installation of Tableau | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 74 | Tableau Dashboards | Implementation of report in Tableau | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO3 |
| 3 | 75 | Tableau Dashboards | Implementation of Dashboard in Tableau | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |

## Lecture Plan Preview-Practical

| Unit No | ExperimentNo | Experiment Name | Text/ Reference Books | Pedagogical Tool** | Mapped with CO Numer(s) |
|---|---|---|---|---|---|
| 1 | 1 | a) Formatting the worksheet using logical formula | T-Mining of Massive Datasets | PPT | CO3 |
| 1 | 2 | a) Create a Pivot table to quickly summarize large | T-Mining of Massive Datasets | PPT | CO4 |
| 1 | 3 | a) Assign a name to a range of cells to make it ea | T-Mining of Massive Datasets | PPT | CO4 |
| 1 | 4 | a) Analysis using charts and graphs, chart styles. | T-Mining of Massive Datasets | PPT | CO3 |
| 2 | 5 | Installation of Oracle/SQL | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 6 | To create, alter, and drop databases, tables, view | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO4 |
| 2 | 7 | Questions on Joins in SQL | ,T-Hadoop in Practice,R-Taming The Big Data Tidal Wave | PPT | CO3 |
| 3 | 8 | Installation of Tableau. | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 9 | Implementation of report in Tableau. | ,T-Hadoop in Action,T-Hadoop in Practice,R-Hadoop: The Definitive Guide | PPT | CO4 |
| 3 | 10 | Implementation of Dashboard in Tableau. | ,T-Hadoop in Action,R-Hadoop: The Definitive Guide | PPT | CO4 |

| Assessment Model | | | |
|---|---|---|---|
| Sr No | Assessment Name | Exam Name | Max Marks |
| 1 | 20EP02 | External Theory | 60 |
| 2 | 20EP02 | Attendance Marks | 2 |
| 3 | 20EP02 | Mid-Semester Test-1 | 20 |
| 4 | 20EP02 | Quiz | 6 |
| 5 | 20EP02 | Short Term Paper / Research Paper | 12 |
| 6 | 20EP02 | Mid-Semester Test-2 | 20 |