**CHRIST (Deemed to be University), Bangalore – 560029**

Department of Statistics and Data Science

M.Sc. Data Science

January 2023

COURSE PLAN

**SECTION I**

|  |  |  |  |
| --- | --- | --- | --- |
| Class | MSc(Data Science) | Semester | July-2022 |
| Course Code | MDS372B | Course title | Web Analytics |
| Hours | 90 | Hours per week | 6 |
| Faculty name | Dr. Dalvin Vinoth Kumar A | Contact details | [dalvin.vinoth@christuniversity.in](mailto:dalvin.vinoth@christuniversity.in)  9952533606 |
| **Credits** | 5 | **Course Type** | DSE |
| Class policies and guidelines | **Guidelines for classes:**   * Attend the class on time and make sure to be attentive throughout the session. * Students are expected to actively participate by answering the questions from teacher and peers. * Fails to appear for any of the CAT, there will be only one repeat test conducted in the last week. To appear for the repeat test, the student has to apply for the same in the format given by the class teacher and by paying the required fee, on or before the specified date. * Appearance in the re-test is subject to the approval by the Course teacher, Programme Coordinator and Head of the Department. * If a student fails in the CIA, he/she has to apply for the Repeat CIA as per the guidelines and regulations of the University. | | |
| Course Description | The objective of this course is to provide overview and importance of Web analytics and helps to understand role of Web analytic. This course also explores the effectiveness of Web analytic strategies and implementation. | | |
| Course Outcomes | **CO1:** Understand the concept and importance of Web analytics in an organization and the role of Web analytic in collecting, analyzing and reporting website traffic.  **CO2:** Identify key tools and diagnostics associated with Web analytics.  **CO3:** Explore effective Web analytics strategies and implementation and Understand the importance of web analytic as a tool for e-Commerce, business research, and market research | | |

**SECTION II**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Unit** | **Unit details** | **Week (starting and end dates)** | **Hours**  **per week** | **Pedagogy (teaching learning methods used)/ activities and or class trips/ dates for assessment** | **Resource/ Reference details** |
| Unit 1  INTRODUCTION TO WEB ANALYTICS | Introduction to Web Analytics: Web Analytics Approach, A Model of Analysis  Lab Exercise  Working concept of web analytics | Week 1 | 6 | Lecture and  Discussion, Problem solving | 1. [Beasley M, (2013), Practical web analytics for user experience: How analytics can help you understand your users. Newnes, 1st edition, Morgan Kaufmann. 2. Sponder M, (2013), Social media analytics: Effective tools for building, interpreting, and using metrics, 1st edition, McGraw Hill Professional. 3. Clifton B, (2012), Advanced Web Metrics with Google Analytics, 3rd edition, John Wiley & Sons. |
| Context matters, Data Contradiction, Working of Web Analytics: Log file analysis  Lab Exercise  Working concept of web analytics | Week 2 | 6 | Lecture and  Discussion, Problem solving, Videos |
| Web Analytics: Log file analysis, Page tagging, Metrics and Dimensions, Interacting with data in Google Analytics  Lab Exercise  Evaluation with Intermediate metrics, custom metrics, calculated metrics. | Week 3 | 6 | Lecture and  Discussion, Problem solving |
| Unit 2 LEARNING ABOUT USERS THROUGH WEB ANALYTICS | Goals: Introduction – Goals and Conversions – Conversion Rate – Goal reports in Google Analytics  Lab Exercise  Collection of web data and other internet data with the help of web analytics | Week 4 | 6 | Lecture and Discussion, Problem solving | * Beasley M, (2013), Practical web analytics for user experience: How analytics can help you understand your users. Newnes, 1st edition, Morgan Kaufmann. * Sponder M, (2013), Social media analytics: Effective tools for building, interpreting, and using metrics, 1st edition, McGraw Hill Professional. * Clifton B, (2012), Advanced Web Metrics with Google Analytics, 3rd edition, John Wiley & Sons |
| Goal reports in Google Analytics – Performance Indicators – Analyzing Web Users: Learning about users  Lab Exercise  Delivering reports based on collected data  Implement the concept of web analytics ecosystem | Week 5 | 5 | Lecture and Discussion, Problem solving |
| Traffic Analysis – Analyzing user content – Click-Path analysis – Segmentation | Week 6 | 7 | Lecture and Discussion, Problem solving, Videos |
| Unit 3 GOOGLE ANALYTICS | Different analytical tools - Key features and capabilities of Google analytics- How Google analytics works - Implementing Google analytics  Lab Exercise  Creation of segmentation in web analytics | Week 7 | 6 | Lecture and Discussion, Problem solving | * Beasley M, (2013), Practical web analytics for user experience: How analytics can help you understand your users. Newnes, 1st edition, Morgan Kaufmann. * Sponder M, (2013), Social media analytics: Effective tools for building, interpreting, and using metrics, 1st edition, McGraw Hill Professional. * Clifton B, (2012), Advanced Web Metrics with Google Analytics, 3rd edition, John Wiley & Sons |
| Getting up and running with Google analytics -Navigating Google analytics – Using Google analytics reports -Google metrics  Lab Exercise  Visualization, acquisition and conversions of web analytics data | Week 8 | 6 | Problem solving, Lecture and Discussion |
| Using visitor data to drive website improvement- Focusing on key performance indicators- Integrating Google analytics with third-Party applications | Week 9 | 6 | Problem solving, Lecture and Discussion |
| UNIT 4 OVERVIEW OF QUALITATIVE ANALYSIS | Lab Usability Testing- Heuristic Evaluations- Site Visits- Surveys (Questionnaires) - Testing and Experimentation: A/B Testing and Multivariate Testing-Competitive Intelligence  Lab Exercise  Performing site search analytics | Week 9 | 6 | Problem solving, Lecture and Discussion | * Beasley M, (2013), Practical web analytics for user experience: How analytics can help you understand your users. Newnes, 1st edition, Morgan Kaufmann. * Sponder M, (2013), Social media analytics: Effective tools for building, interpreting, and using metrics, 1st edition, McGraw Hill Professional. * Clifton B, (2012), Advanced Web Metrics with Google Analytics, 3rd edition, John Wiley & Sons |
| Analysis Search Analytics: Performing Internal Site Search Analytics, Search Engine Optimization (SEO) and Pay per Clik (PPC)- | Week 10 | 6 | Problem solving, Lecture and Discussion |
| Website Optimization against KPIs- Content optimization- Funnel/Goal optimization  Lab Exercise  Analyse the web analytic reports and visualizations  Text Analytics: Natural Language Processing (NLP)- Supervised Machine Learning (ML) Algorithms-API and Web data scarping using R and Python | Week 11 | 6 | Problem solving, Lecture and Discussion |
| UNIT 5 VISUAL ANALYTICS | VISUAL ANALYTICS:  Drill down and hierarchies-Sorting-Grouping- Additional Ways to Group- Creating Sets- Analysis with Cubes and MDX- Filtering for Top and Top N- Using the Filter Shelf | Week 12 | 6 | Lecture and Discussion | * Beasley M, (2013), Practical web analytics for user experience: How analytics can help you understand your users. Newnes, 1st edition, Morgan Kaufmann. * Sponder M, (2013), Social media analytics: Effective tools for building, interpreting, and using metrics, 1st edition, McGraw Hill Professional. * Clifton B, (2012), Advanced Web Metrics with Google Analytics, 3rd edition, John Wiley & Sons |
| The Formatting Pane- Trend Lines- Forecasting- Formatting- Parameters -  SOCIAL NETWORK ANALYSIS:  Types of social network | Week 13 | 4 | Lecture and Discussion, Videos |
| -  SOCIAL NETWORK ANALYSIS:  Types of social network- Graph Visualization-Network Relationships- | Week 14 | 4 | Lecture and Discussion |
| Network structures: equivalence-Network Evolution-Diffusion in networks- Descriptive Modeling-Predictive Modeling-Customer Profiling-Network targeting | Week 15 | 4 | Problem solving, Lecture and Discussion |

**SECTION III**

**Course Outcomes and Programme Outcome Mapping**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Outcomes** | **Programme Outcomes** | | | | | | | |
| **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PSO1** | **PSO3** | **PSO4** |
| **CO1** | 2 |  |  |  |  | 3 |  |  |
| **CO2** |  |  |  |  | 3 |  | 3 |  |
| **CO3** |  | 3 | 1 |  |  |  |  | 3 |

**Course Outcome and Continuous Internal Assessment Mapping:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CIA (50%)** | | | | **ESE (50%)** | | |
| CAT1 | CAC1 | **Attendance** | **CAT (Lab)** | CAT2 | CAC2 | CAT3 |
| 25% | 20% | 10% | 45% | 30% | 30% | 40% |

**Mapping:**  A template to map the Learning Outcomes of the course against the components of assessment is given below:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **CIA (150 marks)** | | | **ESE (150 marks)** | | |
| **Course Outcome** | CAT1 | CAC1 | CAT (Lab) | CAT2 | CAC2 | CAT3 |
| **CO1:** Understand the concept and importance of Web analytics in an organization and the role of Web analytic in collecting, analyzing and reporting website traffic. | 20 marks | 15 marks | 20 marks |  |  | 20 marks |
| **CO2:** Identify key tools and diagnostics associated with Web analytics. | 17.5 marks | 15 marks | 20 marks | 25 marks | 20 marks | 20 marks |
| **CO3:** Explore effective Web analytics strategies and implementation and understand the importance of web analytic as a tool for e-Commerce, business research, and market research |  |  | 27.5 marks | 20 marks | 25 marks | 20 marks |

**SECTION IV**

**ASSESSMENT: CAT-1**

|  |  |
| --- | --- |
| **Assessment component** | Objective & Descriptive Type Test |
| **Portion for the Quiz** | Units,1 & 2 |
| **Mode of conduct** | Offline |
| **Date of exam** | 05-8-22 |
| **Type of questions** | (1) Objective Type Test (MCQ) , 20 Questions , 20 Minutes (10 Marks) (2) Comprehensive Test (Theory) , 1 Hour 30 Minutes (30 Marks) |
| **Maximum marks** | 40 Marks (Converted to 25% CIA) |
| **Duration** | 2 Hours |

**Learning outcomes:**

**LO1:** Understand the importance of collecting, analyzing and reporting website traffic.

**LO2:** Apply key tools and diagnostics associated with Web analytics.

**LO3: I**mplementation of web analytic as a tool for e-Commerce, business research, and market research

**Evaluation rubrics:**

|  |  |
| --- | --- |
| **Score** | **Impression** |
| 15,20 | Proficient |
| 09,14 | Satisfactory |
| 01,08 | Need to improve |

**ASSESSMENT: CAC-1**

**Assessment description:**

|  |  |
| --- | --- |
| **Assessment Component** | ASSIGNMENT |
| **Assignment Topic** | Working of Web Analytics: Page tagging, Metrics and Dimensions |
| **Nature of the assignment** | Individual submission |
| **Submission mode** | Softcopy submission via Google Classroom |
| **Deadline for submission** | 12-8-22 |
| **Page limit** | Topic,1: Minimum 8 pages  Topic,2: Minimum 4 pages |
| **Maximum marks** | 20% CIA |
| **Assignment Description** | Make a study on Working of Web Analytics |
| **General Instruction** | Late submission will not be entertained |

**Learning outcomes:**

**LO1:** Understand the importance of collecting, analyzing and reporting website traffic.

**LO2:** Apply key tools and diagnostics associated with Web analytics.

**LO3: I**mplementation of web analytic as a tool for e-Commerce, business research, and market research

**Evaluation Rubrics:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Evaluation Rubrics** | **Max marks** | | **Criteria [Mark]** | | | | |
| **R1:** Understanding and Applications | 3 | In, depth knowledge on the topic and on the related concepts [3] | | Sufficient understanding on the given topic [2] | Summarized the ideas but not shown its relevance [1] | Not able to summarize the concepts [0.5] | Not able to explain [0] |
| **R2:**  Content coverage | 6 | More relevant discussion and explanation [6-5] | | Attempted with few discussion [4-3] | Covered the basics [2] | Incomplete and not initiated any discussion [1] | Irrelevant content [0] |
| **R3:**  Correctness of Specification | 3 | Detailed and correct specification [3] | | Adequate and correct specification [2] | Specification given but incomplete [1] | Incorrect and incomplete specification [0.5] | No specifications [0] |
| **R4:**  Structure & Organization | 3 | Progression of ideas that build on a central theme with logical coherency [3] | | Logical progression of ideas [2] | Flow followed but transitions are not clear [1] | Flow is uneven [0.5] | Not able to explain [0] |

**ASSESSMENT: CAT-2**

|  |  |
| --- | --- |
| **Assessment component** | Objective & Descriptive Type Test |
| **Portion for the Quiz** | Units 1-3 |
| **Mode of conduct** | Offline |
| **Date of exam** | 1-9-22 |
| **Type of questions** | (1) Objective Type Test (MCQ) , 30 Questions , 30 Minutes (30 Marks) |
| **Maximum marks** | 30 Marks (Converted to 30% ESE) |

**Learning outcomes:**

**LO1:** Understand the importance of collecting, analyzing and reporting website traffic.

**LO2:** Apply key tools and diagnostics associated with Web analytics.

**LO3: I**mplementation of web analytic as a tool for e-Commerce, business research, and market research

**Evaluation rubrics:**

|  |  |
| --- | --- |
| **Score** | **Impression** |
| 15,20 | Proficient |
| 09,14 | Satisfactory |
| 01,08 | Need to improve |

**ASSESSMENT: CAC-2**

**Assessment description:**

|  |  |
| --- | --- |
| **Assessment Component** | ASSIGNMENT |
| **Assignment Topic** | Implementing Google analytics, Getting up and running with Google analytics |
| **Nature of the assignment** | Individual submission |
| **Submission mode** | Softcopy submission via Google Classroom |
| **Deadline for submission** | 03-10-22 |
| **Page limit** | Topic,1: Minimum 8 pages  Topic,2: Minimum 4 pages |
| **Maximum marks** | 30 % ESE |
| **Assignment Description** | Make a study on Interacting with data in Google Analytics. |
| **General Instruction** | Late submission will not be entertained |

**Learning outcomes:**

**LO1:** Understand the importance of collecting, analyzing and reporting website traffic.

**LO2:** Apply key tools and diagnostics associated with Web analytics.

**LO3: I**mplementation of web analytic as a tool for e-Commerce, business research, and market research

**Evaluation Rubrics:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Evaluation Rubrics** | **Max marks** | **Criteria [Mark]** | | | | |
| **R1:** Understanding and Applications | 3 | In,depth knowledge on the topic and on the related concepts [3] | Sufficient understanding on the given topic [2] | Summarized the ideas but not shown its relevance [1] | Not able to summarize the concepts [0.5] | Not able to explain [0] |
| **R2:**  Content coverage | 6 | More relevant discussion and explanation [6-5] | Attempted with few discussion [4-3] | Covered the basics [2] | Incomplete and not initiated any discussion [1] | Irrelevant content [0] |
| **R3:**  Correctness of Specification | 3 | Detailed and correct specification [3] | Adequate and correct specification [2] | Specification given but incomplete [1] | Incorrect and incomplete specification [0.5] | No specifications [0] |
| **R4:**  Structure & Organization | 3 | Progression of ideas that build on a central theme with logical coherency [3] | Logical progression of ideas [2] | Flow followed but transitions are not clear [1] | Flow is uneven [0.5] | Not able to explain [0] |

**ASSESSMENT: CAT-3**

|  |  |
| --- | --- |
| **Assessment component** | Objective & Descriptive Type Test |
| **Portion for the Quiz** | Units 1-5 |
| **Mode of conduct** | Offline |
| **Date of exam** | 24-11-22 |
| **Type of questions** | (1) Objective Type Test (MCQ) , 20 Questions , 20 Minutes (2) Comprehensive Test (Theory) , 1 Hour 30 Minutes |
| **Maximum marks** | 40 Marks (Converted to 40% ESE) |
| **Duration** | 2 Hours |

**Learning outcomes:**

**LO1:** Understand the importance of collecting, analyzing and reporting website traffic.

**LO2:** Apply key tools and diagnostics associated with Web analytics.

**LO3: I**mplementation of web analytic as a tool for e-Commerce, business research, and market research

**Evaluation rubrics:**

|  |  |
| --- | --- |
| **Score** | **Impression** |
| 15,20 | Proficient |
| 09,14 | Satisfactory |
| 01,08 | Need to improve |