BUSINESS INTELLIGENCE AND BIG DATA ANALYTICS

23MBPE662

(COURSE HANDBOOK)

MBA

COURSE HEAD: Ramya Bharadwaj B S

1. GENERAL INFORMATION

Welcome to Business Intelligence & Big Data Analytics!

This course is designed to provide you with a comprehensive understanding of how Business Intelligence (BI) and Big Data can drive decision-making and innovation in modern businesses.

In today's world, businesses are increasingly relying on data to make informed decisions, predict future trends, and optimize operations. This course covers the key concepts, tools, and technologies that enable businesses to turn raw data into actionable insights.

You'll begin by exploring the foundational concepts of BI, including its evolution, its types (Descriptive, Diagnostic, Predictive, and Prescriptive), and the role it plays in business decision-making. We will also cover BI architecture, including data warehousing, data marts, and the ETL (Extract, Transform, Load) process.

You will learn about different types of data (structured vs. unstructured) and data collection methods. The course delves into data warehousing concepts, including star and snowflake schemas, which are essential for organizing and querying large datasets.

Practical skills are essential, and this course provides you with hands-on experience using popular BI tools like Power BI, Tableau, and SAP Business Objects. You'll learn how to create interactive dashboards, reports, and data visualizations, enabling you to communicate insights effectively.

In this rapidly evolving digital era, data is more valuable than ever before. This subject will introduce you to the concepts and technologies that help organizations leverage data to make informed decisions and gain a competitive edge. Whether you are aiming for a career in data analytics, business strategy, or IT, this course will provide you with the essential tools to understand and apply business intelligence (BI) and big data analytics in the real world.

1.1.Course Objectives

This course is designed to:

- Impart knowledge of key concepts of Business Intelligence and Big Data in modern business.
- Impart knowledge on usage of BI tools and techniques to create dashboards and reports.
- Provide concepts of Big Data ecosystems and its role in business decision-making.
- Familiarize with fundamentals of data management and data warehousing in business intelligence.

1.2.Course Outcomes

- **CO1**: Relate the concepts and applications of BI and Big Data to business decision-making.
- **CO2**: Apply the processes and tools used in BI and Big Data to solve real-world business challenges.
- **CO3**: Make use of BI tools to create interactive data visualizations, reports and dashboards.

- **CO4**: Apply Big Data analytics techniques to process, analyse, and manage large volumes of business data.

1.3.Set Text and Suggested Sources

Key Text Books:

1. Ramesh Sharda, Dinesh "Business Intelligence: A Managerial Perspective on Analytics", 3rd Edition, Pearson, 2017.
2. Sharma, and Jeffrey D. B. Thomas Erl, WajidKhattak, Paul Buhler , "Big Data Fundamentals Concepts, Drivers & Techniques", 1st Edition, Prentice Hall, 2016

Reference Books:

1. Ramesh Sharda / DursunDelen / Efraim Turban "Business Intelligence, Analytics, and Data Science: A Managerial Perspective" 4th Edition, Pearson Paperback, 2017.
2. Acharya, Subhasini Chellappan, "Big Data Analytics" , 2nd Edition, Wiley , 2019

1.4.Self-Study Course

In this course, students can take up the "From Excel to Power BI" offered by Coursera. This would greatly help them in developing analytics skills. This digital literacy program is essential as it provides students with valuable skills that complement the traditional learning methods employed in our course. By engaging with this certification, students can enhance their understanding of digital tools and analytical techniques that are increasingly important in today's academic and professional environments. This preparatory work will complement their learning from the course.

Note: The title of the online course is hyperlinked and directly leads to the course to be undertaken. Please register using the same links or stay logged in to be able to access the courses.

2. THE COURSE

2.1.Course Description

BUSINESS INTELLIGENCE & BIG DATA ANALYTICS			
Semester	**III**	CIE Marks	**50**
Course Code	**23MBPE662**	SEE Marks	**50**
Teaching Hrs/Week (L:T:P)	**3:0:0**	Exam Hrs	**03**
Total Hrs	**42**	Credits	**03**

The Business Intelligence & Big Data Analytics course designed to provide students with foundational knowledge in technology and its benefits in business when implemented. The course will run for 13 weeks during Semester 3 and consists of 5 modules that cover essential topics in management of data and application of different tools for data analysis for decision making within organizations. Each week includes 3 lectures, delivered by Professor of Practice focusing on theoretical concepts, practical applications, and course-related activities. Spanning a total of 42 hours, this 3-credit course is assessed through Continuous Internal Evaluation (CIE) for 50 marks and a

Semester-End Examination (SEE) for 50 marks. This will allows students attain a thorough understanding of the course.

2.2. Initiating Contact with Staff and Other Students

We value your inquiries about the course; please use in-class hours, office hours and emails thoughtfully and check previous materials such as this handbook and MITE's official website before reaching out. Engaging with peers will also enhance your understanding and foster a supportive academic community.

2.3. Resources

Along books, resources include dynamic tools like digital libraries, e-learning platforms, and research databases. Students can access these through the college website. Some of the key resources include the VTU Consortium, e-learning platforms, and additional sources like open-access repositories, government portals (e.g., NPTEL, NDLI). These digital tools provide access to e-books, research papers, video lectures, and interactive tutorials, offering flexible and comprehensive learning environments.

E-learning and digital library can be accessed via the college website https://mite.ac.in/ (Campus Life section > Library > VTU Consortium/e-learning platforms/additional sources).

Apart from this, students opting for Business Analytics as their MBA specialization are encouraged to explore the following independent resources to enhance their knowledge:

- International Institute of Business Analytics
- Digital Analytics Association
- Analytics Society of India
- CompTIA
- Institute for Operations Research and the Management Sciences

2.4. Staff

Course Convenor: Ramya Bharadwaj B S
Cabin: 3rd floor, PG Block
Email: ramya@mite.ac.in

2.5. Topics and Reading materials for each module

Module 1 *No. of Hours: 8*

- **Topic: Business Intelligence (BI) Concepts And Application**
  - Importance of BI
  - Data Analytics vs. Data Science.
  - Types of BI
  - BI for Better Decisions.
  - BI architecture: Data warehouse, data marts, Extract, Transform, Load (ETL) process.

- **Activities:**

- Students can start the specialized online course"From Excel to Power BI" offered by Coursera.

- **Essential Readings:**
  - Ramesh Sharda, Dinesh "Business Intelligence: A Managerial Perspective on Analytics", 3rd Edition, Pearson, 2017. Chapter 1)

- **Additional Reading:**
  - Ramesh Sharda / DursunDelen / Efraim Turban "Business Intelligence, Analytics, and Data Science: A Managerial Perspective" 4th Edition, Pearson Paperback, 2017, Chapter 1.

Module 2 *No. of Hours: 9*

- **Topic: Data Management and Data Warehousing**
  - Data Sources and Data Collection,
  - Data collection methods
  - APIs.
  - Data Warehousing Concepts
  - ETL process

- **Activities:**
  - Class will be Divided into small groups (3-4 students per group) and assigned with a different business scenario where they need to collect data, like:
    - Group 1: A retail company wants to understand customer satisfaction.
    - Group 2: A sports analytics company needs to gather data on team performance.
    - Group 3: A marketing firm wants to analyze social media sentiment regarding a new product launch.
    - Group 4: A healthcare organization needs to track patient wait times at various clinics.

  Activity:
  Each group must Identify data sources that would be most relevant for their scenario, Select appropriate data collection methods (e.g., surveys, web scraping, APIs, transactional data). Then Discuss and justify why their chosen data source and method would work best for the given business question.

- **Essential Readings:**
  - Ramesh Sharda, Dinesh "Business Intelligence: A Managerial Perspective on Analytics", 3rd Edition, Pearson, 2017, Chapter 1 and 2.

- **Additional Reading:**
  - Ramesh Sharda / DursunDelen / Efraim Turban "Business Intelligence, Analytics, and Data Science: A Managerial Perspective" 4th Edition, Pearson Paperback, 2017, Chapter 1 and 2.

Module 3 *No. of Hours: 8*

- **Topic: Business Intelligence Tools and Techniques**
  - Introduction to BI tools

- Tool comparison: Pros and cons
- Dashboards and reporting
- Data Visualization:

- **Activities:**
  - Creating reports and dashboards using BI tools.

- **Essential Readings:**
  - Ramesh Sharda, Dinesh "Business Intelligence: A Managerial Perspective on Analytics", 3rd Edition, Pearson, 2017, Chapter 3.

- **Additional Reading:**
  - Ramesh Sharda / DursunDelen / Efraim Turban "Business Intelligence, Analytics, and Data Science: A Managerial Perspective" 4th Edition, Pearson Paperback, 2017, Chapter 2, 3 and 4.

Module 4 *No. of Hours: 8*

- **Topic: Understanding Big Data**
  - Big Data (Volume, Variety, Velocity, Veracity).
  - The role of Big Data in business transformation
  - Big Data in the business context

- **Activities:**
  - Students will be divided into teams are given with case studies pertaining to Big data analytics in Business.

- **Essential Reading**:
  - Sharma, and Jeffrey D. B. Thomas Erl, WajidKhattak, Paul Buhler , "Big Data Fundamentals Concepts, Drivers & Techniques", 1st Edition, Prentice Hall, 2016, Chapter 1 and 2.

- **Additional Reading:**
  - Acharya, Subhasini Chellappan, "Big Data Analytics" , 2nd Edition, Wiley , 2019,Chapter 1and 2.

Module 5 *No. of Hours: 9*

- **Topic: Big Data Ecosystem**
  - Big Data architecture
  - Key components of the Big Data ecosystem: Hadoop, Spark, NoSQL databases
  - Collection and Storage of Big Data
  - Overview of storage systems
  - Introduction to Hadoop
  - Tools and platforms for Big Data analytics

- **Essential Reading**:
  - Sharma, and Jeffrey D. B. Thomas Erl, WajidKhattak, Paul Buhler , “Big Data Fundamentals Concepts, Drivers & Techniques”, 1st Edition, Prentice Hall, 2016, Chapter 3,5,6 and 8.

- **Additional Reading:**
  - Acharya, Subhasini Chellappan, "Big Data Analytics" , 2nd Edition, Wiley , 2019, Chapter 2,3 and 4.

3. ASSESSMENT

The assessment for Business Intelligence course is divided into two components: Continuous Internal Evaluation (CIE) and Semester End Examination (SEE), each accounting for 50% of the total marks.

Continuous Internal Evaluation (CIE) consists of two internal tests, scheduled for the 8th and 14th weeks, contributing a total of 30% to the overall marks. Students can earn the other 20% through assignments, which are allocated as follows:

- 10 marks for a presentation on Power BI report
- 10 marks for Case Study on Big Data in Business

Semester End Examination (SEE) constitutes the remaining 50% of the total marks. Key information regarding examination dates and related details can be accessed via the college website (Academics and Courses section > Calendar of Events > PG Odd Sem).

Rubrics for Assignment Evaluation (Total: 20 Marks / 40% of CIE)

1. Power BI report (10 Marks)			
Timely Completion	**Understanding**	**Presentation**	**Q&A**
3 Marks	**2 Marks**	**3 Marks**	**2 Marks**

2. Case Study on Big Data in Business (10 Marks)				
Topic	**Presentation**	**Coordination**	**Team Effort**	**Solution**
2 Marks	**2 Marks**	**2 Marks**	**2 Marks**	**2 Marks**