



SYLLABUS

Course Title	Business Intelligence
Course Code	MCAL007
Course Credit	Theory(Hrs) : 4
	Practical(Hrs) : 2
	Tutorial (Hrs) : 0
	Credits : 5

Course Objective

The objectives of the course are:

- To understand the fundamental knowledge of business intelligence
- To analyze business data in a wide range with different tools available into the current market.
- To understand BI terminologies and framework, basics of data integration (Extraction Transformation Loading), multi-dimensional data modeling,
- To analyze enterprise reports and application of the concepts using open source/Microsoft tools.

Detailed Syllabus

Sr. No.	Name of chapter & details	Hours Allotted
Section – I		
1	Introduction to Business Intelligence Introduction to digital data and its types – structured, semi-structured and unstructured, Introduction to OLTP and OLAP (MOLAP, ROLAP, HOLAP), BI Definitions & Concepts, BI Framework, Data Warehousing concepts and its role in BI, BI Infrastructure Components – BI Process, BI Technology, BI Roles & Responsibilities, Business Applications of BI, BI best practices	12

2	Basics of Data Integration (Extraction Transformation Loading) Concepts of data integration, needs and advantages of using data integration, introduction to common data integration approaches, Meta data - types and sources, Introduction to data quality, data profiling concepts and applications, introduction to ETL using Pentaho data Integration (formerly Kettle)	12
Section – II		
3	Introduction to Multi-Dimensional Data Modeling Introduction to data and dimension modeling, multidimensional data model, ER Modeling vs. multi dimensional modeling, concepts of dimensions, facts, cubes, attribute, hierarchies, star and snowflake schema, introduction to business metrics and KPIs, creating cubes using Microsoft Excel	13
4	Basics of Enterprise Reporting A typical enterprise, Malcolm Baldrige - quality performance framework, balanced scorecard, enterprise dashboard, balanced scorecard vs. enterprise dashboard, enterprise reporting using MS Access / MS Excel, best practices in the design of enterprise dashboards.	11

Practical Exposure

With intent to get some exposure in the business intelligence space,

- A project that allows the students to apply Technical, Behavioral, Process concepts learnt in the elective course by:
 - Executing near real-life project (with large data)
 - Working in teams (project teams will ideally comprise of 4 members)
 - Experiencing expectations from different roles
- There will be 3 projects
 - **Project 1:** Data in disparate data sources such as Excel, text file, databases etc. will be provided to the students. They will be expected to extract, cleanse, integrate and load it into the data-warehouse.
 - **Project 2:** Design reports according to given business scenarios. The data for the reports is to be pulled from the data-warehouse built in the earlier project.
 - **Integrated Project:** Extract data from various data sources, perform transformations, load into target database/spreadsheet, create a cube and pull reports on the data.

Instructional Method and Pedagogy:

- Lectures will be conducted on the basis of Classroom Response Systems with the use of multi -media projector, black board, OHP etc. to develop skills for data analysis
- Project work on the basis of course contents given at the end of each unit/topic and will be evaluated at regular interval
- Guidance will be provided to analyze data for real-world business scenario with decision makers approach

Course Learning Outcomes:

At the end of this elective, student will be able to:

- **Differentiate** between Transaction Processing and Analytical applications and describe the need for Business Intelligence
- **Demonstrate** understanding of technology and processes associated with Business Intelligence framework
- **Demonstrate** understanding of Data Warehouse implementation methodology and project life cycle
- **Given** a business scenario, identify the metrics, indicators and make recommendations to achieve the business goal
- **Design** an enterprise dashboard that depicts the key performance indicators which helps in decision making
- **Demonstrate** application of concepts using open source/MS Office

Text books:

- Fundamentals of Business Analytics
Authors: RN Prasad and Seema Acharya

Reference Books:

- Business Intelligence by David Loshin
- Business intelligence for the enterprise by Mike Biere
- Business intelligence roadmap by Larissa Terpeluk Moss, Shaku Atre
- An introduction to Building the Data Warehouse – IBM
- Business Intelligence For Dummies – Swain Scheps
- Successful Business Intelligence: Secrets to making Killer BI Applications by Cindi Howson
- Information dashboard design by Stephen Few

Additional Resources

- <http://www.informationbuilders.com/business-intelligence>
- <http://businessintelligence.com/>
- http://en.wikipedia.org/wiki/Business_intelligence
- <http://www.oracle.com/us/solutions/business-analytics/business-intelligence/overview/index.html>
- <http://www.microsoft.com/en-us/bi/default.aspx>