Course Curriculam

Course Code: IT402

Course Level UG

Course Title Data Mining and Business Intelligence

Course Description :

Credit Units

L	T	P/S	SW	AS/DS	FW	No. of PSDA	Total Credit Unit
3	0	0	2	0	0	0	4

Course Objectives :

SN.	Objectives
1	The purpose of this course is to introduce the basic data mining technologies and their use for business intelligence. The objective of this course is to teach the students how to analyze the business needs for knowledge discovery in order to create competitive advantages and to apply data mining technologies appropriately in order to realize their real business value

Pre-Requisites : General

Course Contents / Syllabus :

SN.	Module	Descriptors / Topics	Weightage
1	Introduction to Data Mining and Business Intelligence	Introduction: DM and KDD process Integration of a data mining system with a database or a data warehousing understanding, Supervised and unsupervised learning. BI and DW architectures and its types - Relation between BI and DW - OLAP (Online analytical processing) definitions - Difference between OLAP and OLTP - Dimensional analysis – data cube representations, Drill-down and roll-up - slice and dice or rotation - OLAP models - ROLAP versus MOLAP - defining schemas: Stars, snowflakes and fact constellations, case studies.	25.00
2	Data Preprocessing	Data Pre-Processing: What kinds of data can be mined, Data Cleaning: Missing Values, Noisy Data,(Binning, Clustering, Regression),Inconsistent Data, Data Integration and Transformation. Data Reduction:-Data Cube Aggregation, Dimensionality reduction, Data Compression, Numerosity Reduction, Discretization and Concept hierarchy generation, case studies.	15.00
3	Association and Clustering algorithm	Association rules: Introduction to market basket analysis, Large Item sets, Basic APRIORI AND FP Tree Algorithms Clustering: Introduction, Similarity and Distance Measures, Hierarchical and Partitioned Algorithms. Hierarchical Clustering Based Methods-DBSCAN, case studies.	20.00
4	Classification and Predictions	What is Classification & Prediction, Issues regarding Classification and prediction, Decision tree, Bayesian Classification, Classification by Back propagation, K-nearest neighbor classifiers, support vector machine, regression (linear and logistic regression) , case studies.	20.00
5	Data Mining for Business Intelligence Applications	BI Architecture, Introduction to Business analytical tool (Power BI, LIS) spread sheets, concept of dashboard, OLAP, decision engineering, Data mining for business Applications like Balanced Scorecard, Fraud Detection, Click stream Mining, Market Segmentation, Retail industry, Telecommunications Industry, Banking & Finance and CRM etc, case studies.	20.00

Course Learning Outcomes :

SN.	Course Learning Outcomes
1	Approach business problems data-analytical by identifying opportunities to derive business value from data.
2	Know the basics of data mining techniques and how they can be applied to extract relevant business intelligence.
3	Examine the types of the data to be mined and present a general classification of tasks and primitives to integrate a data mining system.
4	Discover interesting patterns from large amounts of data to analyze and extract patterns to solve problems, make predictions of outcomes

5	Apply and analyze data mining for Business Intelligence Application.

Pedagogy for Course Delivery :

SN.	Pedagogy Methods
1	Understanding of basic concepts of Database Management System and Algorithms and Data Structures

Theory /VAC / Architecture Assessment (L,T & Self Work): 100.00 Max : 100

Attendance+CE+EE : 5+35+60

SN.	Type	Component Name	Marks
1	Attendance		5.00
2	End Term Examination (OMR)		60.00
3	Internal	MID TERM EXAM	15.00
4	Internal	HOME ASSIGNMENT	10.00
5	Internal	PRESENTATION	10.00

Lab/ Practical/ Studio/Arch. Studio/ Field Work Assessment : 0.00 Max : 100

N/A

List of Professional skill development activities :

No.of PSDA : 0

N/A

Text & References :

SN.	Type	Title/Name	Description	ISBN/ URL
1	Book	• Data Warehousing Fundamentals for IT Professionals, Paulraj Ponniah, Willey 2nd Edition.		
2	Book	• Business Intelligence: Practices, Technologies, and Management- Rajiv Sabherwal , Irma Becerra-Fe		
3	Book	• Data Warehousing, Reema Thareja, Oxford University Press, 2009 Edition		
4	Book	• Data Mining: Concepts and Techniques, J.Han, M.Kamber, Academic Press, Morgan Kanf man Publishers		
5	Book	• Data Warehousing, Data Mining & OLAP, Alex Berson and Stephen J. Smith, Tata McGraw-Hill Edition,		
6	Book	• Data Mining, VikramPudi and P. Radha Krishna, Oxford University Press, 2009 Edition		