TERM: III
YEAR: 2018-19
BATCH: I

FACULTY: Prof. Ramesh Behl/Prof. Manit Mishra
Telephone: (0674)3042107/3042127
E-Mail: *rbehl@imi.edu/manit.mishra@imibh.edu.in.*
Office hours: 9.30 AM – 5.30 PM

Course Introduction:
At the heart of analytics lies the belief, "The unexamined decision isn't worth making," as argued by Davenport *et. al* in their book "Analytics at work: Smarter decisions: better results." The massive amount of data generated all around us has enabled an objective way of decision making. Leveraging this data to make sound business decisions for pricing products, maintaining inventory, recruiting talent and a multitude of other situations contributes towards improving efficiency, managing risk and enhancing profit. The course intends to enable students to rise above the functional silos and grasp the holistic relevance of analytics in competing for the future. A synergistic amalgamation of theoretical and hands-on approach would make you competent to use the tools to decipher big data. The underlying objective is to create managers who can utilize analytics to improve performance in key business domains by disseminating information and generating insight.

Learning Outcomes:
The specific objectives of the course are-
1.	To enhance the theoretical understanding of students on various concepts of analytics.
2.	To understand SAP Business Warehouse as the data staging for Business Analytics
3.	To enhance the efficiency of students in using software for extracting information and generating insight.
4.	To familiarize students with data mining concepts and techniques.
5.	To develop the competency of assessing a predicament and choosing the appropriate tool to arrive at a decision.
6.	To expose students to a set of predictive tools.

Course Pedagogy:
The teaching methodology will be an optimum amalgamation of class-room teaching, hands-on experiments and case discussions. A theoretical understanding of the tools will be followed by data-based application of tools and lastly, case-based application.

Reference books:
1.	Shmueli, G., Patel, N. R., & Bruce, P. C. (2011). *Data Mining for Business Intelligence: Concepts, Techniques, and Applications in Microsoft Office Excel with XL Miner*. John Wiley and Sons.
2.	Linoff, G. S., & Berry, M. J. (2011). *Data Mining Techniques: For Marketing, Sales, And Customer Relationship Management*. John Wiley & Sons.
3.	Davenport, T. H., & Harris, J. G. (2007). *Competing on Analytics: The New Science of Winning*. Harvard Business Press.

Analytical tools:

SPSS, SAP LUMIRA, XL Miner & Predictive Analytics.

Course Evaluation criteria:

Quiz	20%
Case analysis	20%
Mid-term	30%
End-term	30%
Total	**100%**

Session Plan:

Session	Topic	Learning Outcomes	Reading
1 - 3	Introduction to Business Analytics – Concepts & Applications	LO-1	- Ch. 1 -2 of Shmueli et al. - Ch. 17, 1, 3 & 5 of Linoff & Berry - Business Intelligence: Definitions & Solutions - Introduction to BI - Exercise-1: Multidimensional Analysis using Excel
4 - 6	Multidimensional Reporting using SAP Big Data Warehouse Application: Building & Accessing Data Warehouse	LO-2	- Big Data Meets Big Data Analytics - Exercise-2: Executing Query on a Data Warehouse - Exercise-3: Creating Data Warehouse Query

7-9	Multiple Regression Analysis • Estimating regression model & assessing fit (R^2 & adjusted R^2) • Interpretation (Regression coefficient; Multicollinearity) Application: • Predicting automobile price • Predicting property price	LO-1 LO-3 LO-4 LO-5 LO-6	• Ch. 5 of Shmueli et al. Reading: Big Data, Analytics, and the Path from Insights to Value. Data: • Toyota Corolla • Boston Housing
10-11	Naïve Bayes': A classification method • Lift chart • Classification matrices Predicting fraudulent financial reporting. Application: Modelling fraudulent financial reporting	LO-1 LO-3 LO-4 LO-6	• Ch. 3 and Ch.6 of Shmueli et al. • Ch. 6 (p. 210-213) & Ch. 21 (p. 800-805) of Linoff & Berry Reading: Diamonds in Data Mine. Data: • Physical fitness • Flight delay
12-13	Classification & regression trees (CART) • Classification tree • Regression tree Application: Predicting factors influencing • Acceptance of personal loan • Automobile pricing • Property pricing	LO-1 LO-3 LO-4 LO-5 LO-6	• Ch. 7 of Shmueli *et al.* • Ch. 7 of Linoff & Berry. Reading: Business Intelligence and Analytics: From Big Data to Big Impact Data: • Universal Bank • Toyota Corolla • Boston Housing
14-15	Predictive analytics • Scoring test data • Scoring new data	LO-1 LO-3 LO-4 LO-5	• Ch. 21 (p. 800-805) of Linoff & Berry Reading: Turning Customer Interactions into Money: Using Predictive Analytics to Achieve Stellar ROI Data: • Flight Delay • Boston Housing

16	Business perspective of Business Analytics • Competitive advantage • DELTA	LO-1 LO-3 LO-5	Davenport & Harris 2010, pp. 1-22. Reading: IDC White Paper: The Business Value of Predictive Analytics

17 - 18	Market basket analysis
	
	Applications:
	• What goes with what:
	  Purchase of cell phone accessories.
	  Purchase of books
	• Housing prices.
		LO-3
		LO-4
		LO-6
			Exrcise-4: Association Analysis using Titanic Data

19 - 20	Machine Learning with Predictive Analytics & Expert Analytics	LO-6	Exercise – 5: Segmentation Analysis

Academic integrity

a)   **Plagiarism** is the use of or presentation of ideas, works that are not one's own and which are not common knowledge, without granting credit to the originator. Plagiarism is unacceptable in IMI and will invite penalty. Type and extent of penalty will be at the discretion of the concerned faculty.

b)   **Cheating** means using written, verbal or electronic sources of aid during an examination/ quiz/ assignment or providing such assistance to other students (except in cases where it is expressly permitted by the faculty). It also includes providing false data or references/list of sources which either do not exist or have not been used, having another individual write your paper or assignment or purchasing a paper for one's own submission. Cheating is strictly prohibited at IMI and will invite penalty as per policies of the Institute.