INTERNATIONAL MANAGEMENT INSTITUTE, BHUBANESWAR
POST GRADUATE DIPLOMA IN MANAGEMENT (PGDM)
BUSINESS ANALYTICS (IS608)
CREDIT: Full (3 Credits)
SESSION DURATION: 90 Minutes

TERM: V
YEAR: 2017-18
BATCH: II

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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 a completely objective way of decision making. Leveraging of this data to make sound business decisions while 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 the student 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 outcomes 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.

Course Readings:

Books

1.   **DATA MINING FOR BUSINESS INTELLIGENCE.** Shmueli G, Patel NR & Bruce PC (2008). Wiley India Pvt. Ltd.

2. **DATA MINING TECHNIQUES.** Linoff GS & Berry MJA (2011). Wiley India.
3. **BUSINESS FORECASTING.** Hanke JE & Wichern DW (2009). PHI.
4. **COMPETING ON ANALYTICS: THE NEW SCIENCE OF WINNING.** Davenport TH & Harris JG (2007). Harvard Business School Press, Boston, Massachusetts.
5. **ANALYTICS AT WORK: SMARTER DECISIONS, BETTER RESULTS.** Davenport TH, Harris JG, & Morison R (2010). Harvard Business School Press, Boston, Massachusetts.
6. **ESSENTIALS OF BUSINESS ANALYTICS.** Camm, JD, Cochran, JJ, Fry, MJ, Ohlmann, JW, Anderson, DR, Sweeny, DJ, & Williams, TA (2015). Cengage Learning India Pvt. Ltd.

Analytical tools: XL-Miner, SPSS, SAP LUMIRA & Predictive Analytics.

Course Evaluation criteria:

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

Session Plan:

Session	Topic		Learning Outcomes	Reading
	Concept	**Application**		
1-2.	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
3-4.	Data visualization, Market basket analysis & Association rules.	1. What goes with what: Purchase of cell phone accessories. Purchase of books 2. Housing prices.	LO-3 LO-4 LO-6	➢ Ch. 3 & Ch. 11 of Shmueli et al. ➢ Ch. 15 of Linoff & Berry.
5-6.	Naïve Bayes': A classification method • Lift chart	Predicting fraudulent financial reporting.	LO-1 LO-3 LO-4 LO-6	➢ Ch.6 of Shmueli et al. ➢ Ch. 6 (p. 210-213) & Ch. 21 (p. 800-

					805) of Linoff & Berry
	• Classification matrices	Data: ➢ Physical fitness ➢ Flight delay			➢ Ch. 3 of Shmueli et al. ➢ Reading: Advertising analytics 2.0.
7.	Scoring • Scoring test data • Scoring new data	Data: ➢ Flight delay ➢ Boston housing	LO-1 LO-3 LO-4 LO-6		➢ Ch. 21 (p. 800-805) of Linoff & Berry
8.	Decision tree analysis: Classification & regression trees (CART)	Factors influencing acceptance of personal loan. Data: ➢ Toyota Corolla ➢ Boston housing	LO-1 LO-3 LO-4 LO-6		➢ Ch. 7 of Linoff & Berry. ➢ Ch. 7 of Shmueli *et al.* ➢ Reading: Diamonds in data mine.
9-10.	Binary Logistic Regression	Classifying products into good and poor quality Data: ➢ Universal bank	LO-1 LO-3 LO-4 LO-6		➢ Ch. 8 of Shmueli et al. ➢ Ch. 5 of Hair *et. al.* 2006. ➢ Reading: Implementing marketing analytics.
11-12	Artificial Neural Network (ANN)	Customer service prioritization: Classifying accident severity. Data: ➢ Toyota Corolla ➢ Boston housing	LO-1 LO-3 LO-4 LO-6		➢ Ch. 9 of Shmueli et al. ➢ Ch. 8 of Linoff & Berry. ➢ Reading: Big data, analytics, and the path from insights to value.
13.	Business perspective of Business Analytics ➢ Competitive advantage. ➢ DELTA.		LO-1 LO-3 LO-5		➢ Davenport & Harris 2010, pp. 1-22.
14.	Presentation of case analysis		LO-3 LO-5		
15-16	Multidimensional Reporting using SAP Business Warehouse		LO-1 LO-2		**Case Study -1** **Exercise – 1**

			LO-3 LO-4	
17-18	Dimension reduction, Survival analysis & Social media analytics	Factors influencing consumption of products: Breakfast cereals.	LO-1 LO-2 LO-3 LO-4	➢ Ch. 3 of Shmueli et al. ➢ Ch. 10 of Linoff & Berry ➢ Big Data Meets Big Data Analytics
19-20	Machine Learning with SAP HANA & Predictive Analytics		LO-1 LO-2 LO-3 LO-4	**Exercise – 2**
21-22	Automated & Expert Analytics		LO-1 LO-2 LO-3 LO-4	**Exercise - 3**