THE CYPRUS INTERNATIONAL INSTITUTE OF MANAGEMENT

COURSE UNIT DESCRIPTION

Course Unit Title	**Managing Big Data**		
Course Unit Code	BI415		
Type of Unit	Core		
Level of Course Unit	First cycle		
Year of Study	First		
Number of ECTS Credits	6.0 ECTS		
Class Contact Hours	28		
Minimum Learning Effort (In Hours)	150		
Course Unit Objectives	The advancements of IT storage, processing, computation and sensing technologies added new complexity dimensions to the widely used statistical and machine learning based techniques used so far in data analysis. Companies and organizations store huge volumes of data of a variety of formats and structures, coming in at different velocities, adding further complexities to the problem of data analysis. This course will teach the students the value that could be extracted from large datasets (Big Data) in order to improve the decision making capabilities in an enterprise. By completion of this course, the students will be equipped with both business-oriented and technical skills related to the world of Big Data. They will acquire knowledge around state-of-art tools used in Big Data analytics such as Hadoop, Pig and Hive.		
Learning Outcomes	The students completing the course should be able to		
	CILO 1	Understand the value of Big Data, as well as fundamental properties like velocity, variety, veracity and volume.	
	CILO 2	Understand the complexities involved in Big Data Science related projects.	
	CILO 3	Demonstrate understanding of the different data types; un-modelled, multi-structured, un-structured etc.	
	CILO 4	Acquire technical capabilities for storing large datasets using state-of-the-art architectures and software.	
	CILO 5	Acquire technical capabilities for querying large datasets for data mining and analytics purposes.	
Name of Lecturer(s)	Dr Majeed Khurram		
Mode of delivery	Face to Face		
Prerequisites or corequisites	BI 420 Programming for Business Analytics BI140 Data Analytics and Decision Making		
Course Content	1. Introduction to Big Data and its associated value and challenges. The challenge of scaling.		CILO 1,2
	2. Big Data properties: Velocity, Variety, Veracity and Volume.		CILO 2

	3. The different data types; structured, semi-structured, unstructured; the concept of key-value pairs.	CILO 3
	4. Processing Large Datasets: Introduction to Hadoop and the Map-Reduce Algorithm.	CILO 4
	5. Big Data Mining using Pig and Hive: supervised, semi-supervised and unsupervised learning; clustering and classification techniques.	CILO 5
Recommended or required reading	**Required Reading:** 1. Bernard Marr. *Big Data: Using Smart Big Data, Analytics and Metrics to Make Better Decisions and Improve Performance*. Wiley, 2015. 2. Tom White. *Hadoop: The Definite Guide. O'Reilly (4th Edition)*, 2015. **Recommended Reading:** Textbooks 3. Cindi Howson. Successful Business Intelligence. *Unlock the value of BI and Big Data*. Mc Graw Hill Education (2nd Edition), 2013. Research Articles: 4. Chen Hsinchun, Roger Chiang and Veda Storey. *Business Intelligence and Analytics: From Big Data to Big Impact*. MIS Quarterly, Vol. 36(4), p1165-1188,2012. 5. Bart Baesens, Ravi Bapna, James Marsden, Jan Vanthienen and Leon Zhao. *Transformational Issues of Big Data and Analytics in Networks Business*. MIS Quarterly. Vol. 40(4), p807-818, 2016. 6. Andrew Mcafee and Erik Brynjofsson. *Big data: The Management Revolution.* Harvard Business Review, October 2012, 2012. 7. Maxwell Wessel. *You don't need big data – You need the Right Data. Harvard Business Review, November 2016, 2016.*	
Planned learning activities and teaching methods	lectures, group work, lab work, role playing, project-based learning, homework	
Assessment methods and	Class participation: 10%	

criteria	Individual Assignments: 50% In-class examination: 40%
Language of Instruction	English
Work Placement(s)	Not applicable