

Course code		INDUSTRY 4.0: BIG DATA APPLICATIONS (Reference Book Chapters)	L	T	P	C
Core/Elective/Supportive	Core		4			4
Pre-requisite	Nil		Syllabus Version			
Course Objectives:						
The main objectives of this course are to:						
<ol style="list-style-type: none"> 1. To understand the need of Big Data for Industry 4.0 transformation 2. To understand the importance of data integration service providers 3. To analyse Big Data infrastructure for effective online teaching and learning 4. To discuss the role of Big Data in various fields 5. To provide Big Data scope into different application areas 						
Unit:1	Introduction to Big Data Analytics and Data Science				12-- hours	
Data: Terminologies (5-5.1.1) – Data Evolution (5-5.1.2) - Data Formats and sources (5-5.1.2.2) - Big Data Analytics (5-5.1) - Big Data concepts (4-4.2) - Big Data Components (5-5.2) – Big Data Characteristics (5-5.2.1) – Big Data vs. Statistics vs. Data Mining (5-5.1.3.3) – Big Data Approaches (13-13.1.3) - Data Lifecycle (13-13.2) - Data Science: A Definition (1-1.1.1) – Data Analysis (5-5.1.3.2) - Data Analytics types (1-1.1.3) - Data in the business (1-1.1.2) - Data Analytics Process, Implementation and Measurement (1-1.1.5)						
Unit:2	Data Integration and Big Data Systems				12-- hours	
Data Integration (2-2.2) – Data Integration Solutions (2-2.3) – ETL (2-2.3.2.1) – Data Integration Methodologies (2-2.4) – Big Data Processing: Architecture (5-5.2.2) – Traditional vs Big Data Framework (5-5.2.2.1) – Big Data related technologies (5-5.2.3) – Big Data Industry 4.0 Applications (5-5.2.4)						
Unit:3	Business Statistical Methods for Big Data Analytics				12-- hours	
Statistical methods and analytics techniques used across business (1-1.5) – Statistical methods and analytics techniques used in sales and marketing (1-1.6) – Data types generated in sales and marketing function (1-1.6.1) – Statistical Methods and Analytical Techniques (1-1.6.2) – Statistical Methods and Analytics Techniques used in Supply Chain Management (1-1.7) – Analytics use case in SCM (1-1.7.2)						
Unit:4	Big Data for Education 4.0				12-- hours	
Education 4.0 in India (10-10.6) - Digital Revolution of Education 4.0 (8-8.2) – Education 4.0 (8-8.2.1) – Requirements of Education 4.0 in Industry (8-8.2.2) – Benefits of Education 4.0 for Business Sector (8-8.2.3) – Influence of Industrial Revolution 4.0 on Higher Education (8-8.2.4) – Conceptual Framework of Big Data for Industry 4.0 (8-8.3) – Need for Big Data Analytics in Education (10-10.2)						
Unit:5	Applications using Big Data and Business Analytics				12-- hours	
Big Data Analytics and Business Analytics: An introduction (8-8.1) – Business Analytics (8-8.4) – Business Analytics vs. Business Intelligence (8-8.4.1) – Business Intelligence (8-8.4.1.2) – Challenges of Big Data and Business Analytics (8-8.6) – Applications of Big Data (8-8.5) – Big Data Analytics in Finance Industry (9-9.4) – Applications of Big Data Analytics in Education (10-10.3) – Big Data in Biomedical Research (13-13.4) – Applications in Biomedicine (17-17.4) – Applications in Healthcare						

(17-17.5) – Big Data Use case: Warehouse Management and Supply Chain (5-5.4.2) – Automobile in Industry (5-5.4.2.2) – Pharmaceuticals (5-5.4.2.3) – Sport Analytics (5-5.4.2.4)

	Total Lecture hours	60-- hours
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Reference Book

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| 1 | Kaliraj, P. Devi, T. (2022). Big Data Applications in Industry 4.0 (P. Kaliraj, Ed.) (1st ed.). Auerbach Publications. https://doi.org/10.1201/9781003175889 |
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