



YASHASWI EDUCATION SOCIETY'S
INTERNATIONAL INSTITUTE OF
MANAGEMENT SCIENCE, CHINCHWAD

FINANCIAL ANALYTICS

COURSE COORDINATOR -
PROF MAHESH MAHANKAL

YEAR : 2020 - 21



Course Code	FA-1
Course Title-	Financial Analytics
Course Delivery	<i>Duration: 3 months (40 Teaching Hours)</i>
COURSE SCHEDULE-	<i>Timings: Every Monday & Wednesday in a week 4:05 PM- 6:55 PM (including 20 mins break)</i>
Course Commencement	Date: 15 th February 2021
ASSESSMENT CRITERIA	Periodic evaluations have been built in throughout the duration of the course in the form of quizzes, assignments, projects, case studies and other objective/subjective assessments. The evaluations are designed to ensure continuous student engagement and to encourage learning. Students who successfully clear the same along with the requisite attendance criteria will be awarded a Certificate from IIMS Chinchwad.
ELIGIBILITY	<ul style="list-style-type: none"> • Graduation or equivalent degree from any recognized University or Institution. • Working professionals • Corporate Nominated (Graduation criteria may be considered for exemption in cases where participants have some prior experience in Finance domain).

Course Learning Outcomes (CLO):

At the end of the course, students will be able to:

- Have a working knowledge of the issues of data quality, data storage, data scrubbing, data flows, and data encryption and their potential solutions.
- Understand and design various schemas needed for the representation of financial data.
- Tackle problems dealing with data management issues such as collection, warehousing, preprocessing and querying.
- Apply the newly acquired data management and database skills to financial data from the capital markets, social media, and the financial services sector.



40 Teaching Hours

Syllabus

Week-1	Introduction to Financial Data Science. The Major Building Blocks. Introduction to R. Case Study: Exploratory Data Analysis Financial Data Quality Issues and Data Scrubbing. Feature Extraction and Portability. Data Reduction and Transformation.
Week 2	Web Page Retrieval, Scrapping, Regular Expression Extraction. Case Study: Data and Web Technologies.
Week 3	Similarity and Distances. Impact of High Dimensionality. Impact of Data Distribution. Impact of Local Data Distribution.
Week 4	Classification Methods.
Week 5	Tree-Based Methods.
Week 6	Clustering Methods.
Week 7	Time Series Data. Using Decision Tree to Trade Stock. Building a Trading Strategy. Handling Time-Dependent Data in R.
Week 8	Mining Text Data. Document Preparation and Similarity Computation. Topic Modeling.
Week 9	Case Study: Using Statistics to Identify Spam.
Week 10	Blockchain. Cryptocurrencies.
Week 11	Outlier Analysis.
Week 12	Hadoop. HDFS. MapReduce. Hive. Pig.
Week 13	Review and Catching up.

Suggested Readings:

1. Charu C. Aggarwal, **Data Classification: Algorithms and Applications**. CRC Press, 2015. (ISBN: 978-1-4665-8674-1)
2. Charu C. Aggarwal, **Data Mining**. Springer, 2015. (ISBN: 978-3-319-14141-8)
3. Deborah Nolan and Duncan T. Lang, **Data Science in R: A Case Studies Approach to Computational Reasoning and Problem Solving**, CRC Press, 2015. (ISBN: 978-1-4822-3481-7)
4. Norman Matloff, **The Art of R Programming**, No Starch Press, 2011. (ISBN: 978-1-59327-384-2)
5. Cathy O'Neil and Rachel Schutt, **Data Science**, O'Reilly, 2014. (ISBN: 978-1-449-35865-5)