

FINANCIAL ANALYTICS

CREDITS:	3
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OBJECTIVE:

- This course introduces a core set of modern analytical tools that specifically target finance applications.

UNIT I - CORPORATE FINANCE ANALYSIS 9

Basic corporate financial predictive modeling- Project analysis- cash flow analysis- cost of capital using sensitivity analysis, Indifference point and Financial Break even modeling, Capital Budget model-Payback, NPV, IRR, and MIRR. Bankruptcy Modeling- Beaver t test, Ohison logistic regression and Alt man Z score.

UNIT II - FINANCIAL MARKET ANALYSIS 9

Estimation and prediction of risk and return (bond investment and stock investment) – adjusting for stock splits, adjusting for mergers, plotting multiple series, data importing from web portal and data cleansing. Time series-examining nature of data, EWMOA, Value at risk, ARMA, ARCH and GARCH.

UNIT III - PORTFOLIO ANALYSIS 9

Portfolio Analysis – capital asset pricing model, Sharpe ratio, Markowitz's mean variance optimization model and cluster analysis for categorisation of portfolio. Option pricing models- binomial model for options, Black Scholes model and Option implied volatility.

UNIT IV - TECHNICAL ANALYSIS 9

Prediction using chart and fundamentals – RSI, ROC, MACD, moving average and candle charts, simulating trading strategies. Prediction of share prices using machine learning-ANN and SVM.

UNIT V - CREDIT RISK ANALYSIS 9

Credit Risk analysis- Data processing, Decision trees, logistic regression and evaluating credit risk model.

TOTAL: 45 PERIODS

OUTCOME

- The learners should be able to perform financial analysis for decision making using excel, Python and R.

REFERENCES:

1. Financial analytics with R by Mark J. Bennett, Dirk L. Hugen, Cambridge university press.
2. Haskell Financial Data Modeling and Predictive Analytics Paperback – Import, 25 Oct 2013 by Pavel Ryzhov.
3. Quantitative Financial Analytics: The Path To Investment Profits Paperback – Import, 11 Sep 2017 by Edward E Williams (Author), John A Dobelman.
4. Python for Finance - Paperback – Import, 30 Jun 2017 by Yuxing Yan (Author).
5. Mastering Python for Finance Paperback – Import, 29 Apr 2015 by James Ma Weiming.