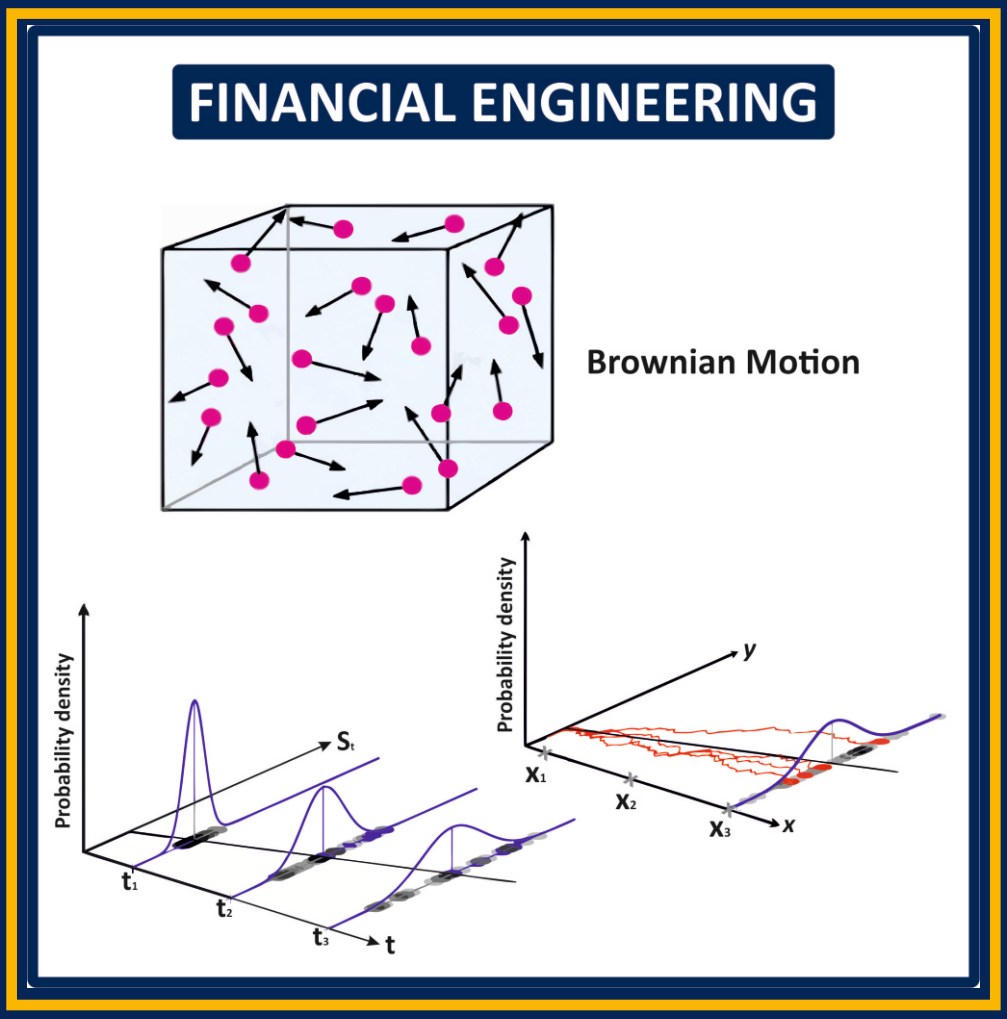
FINANCIAL ENGINEERING
using Excel

30+ hours

Case Study and Project- driven Methodology

Blended Learning Methodology



PEAKS2TAILS

DETAILED CURRICULUM

MODULE 1 - PORTFOLIO THEORY

UTILITY THEORY	▪ Stopping time of a Gamble ▪ Absolute and Relative Risk Aversion ▪ Insurance premium
STOCHASTIC DOMINANCE	▪ First order Stochastic Dominance ▪ Second order Stochastic Dominance ▪ Risk-averse and Risk-seeking investor
MEASURES OF INVESTMENT RISK	▪ Downside Semi Variance ▪ Value at Risk ▪ Risk measures and utility function
STOCHASTIC MODEL OF INVESTMENT RETURN	▪ Fixed Rate Model ▪ Varying Rate Model ▪ Lognormal Model
PORTFOLIO THEORY	▪ Correlation between Asset returns ▪ Optimal portfolio ▪ Benefits of diversification

DETAILED CURRICULUM

MODEL OF ASSET RETURNS	▪ Single Index Model ▪ Orthogonality ▪ Zero-beta portfolio
ASSET PRICING MODEL	▪ Market portfolio ▪ Efficient Frontier under Capital Asset Pricing Model ▪ Security Market Line

MODULE 2 - STOCHASTIC CALCULUS

BROWNIAN MOTION AND MARTINGALE	▪ Brownian Motion squared ▪ dB(t) squared
STOCHASTIC CALCULUS AND ITO PROCESS	▪ Ito integrals ▪ Ito lemmas ▪ Constant Elasticity of Variance models
STOCHASTIC MODELS OF SECURITY PRICES	▪ Normality of returns ▪ Parameters of Geometric Brownian Motion ▪ Modified Geometric Brownian Motion

DETAILED CURRICULUM

MODULE 3 - DERIVATIVES

DERIVATIVE SECURITIES	▪ Bounds of Options ▪ Replicating payoff ▪ Put-Call Parity
OPTION GREEKS	▪ Delta of Forward contract ▪ Theta of Forward contract ▪ Approximate Derivative price
THE BINOMIAL MODEL	▪ 8-step Binomial tree ▪ Binomial branch Q vs P ▪ Binomial model with dividends
BLACK SCHOLES OPTION PRICING	▪ Black Scholes calculator ▪ Time value of Call option ▪ Portfolio of options
5 STEP METHOD IN DISCRETE TIME	▪ Self financing ▪ Equivalent probability measures ▪ Cameron-Martin-Girsanov

DETAILED CURRICULUM

5 STEP METHOD CONTINUOUS TIME	▪ Single index model ▪ Orthogonality ▪ Zero-beta portfolio

MODULE 4 - INTEREST RATE & RISK ANALYSIS

TERM STRUCTURE OF INTEREST RATES	▪ Vasicek yield curves ▪ Arbitrage free Vasicek bond price ▪ Vasicek vs Cox Ingersoll-Ross
CREDIT RISK	▪ Structural model ▪ 2 state model ▪ Jarrow Landow Turnbull model
RUIN THEORY	▪ Motor claims and ruin theory ▪ Fire insurance ▪ Ruin theory simulation
RUN OFF TRIANGLES	▪ Run off triangles with inflation ▪ Average cost per claim run off Triangles ▪ Bornhutter- Ferguson method

BACKGROUND | OBJECTIVE | ATTENDEES | PEDADOGY

BACKGROUND

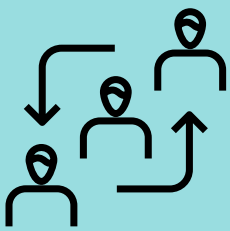
Financial Engineering is the buzz word of the modern times involving design of financial products and bringing in more innovation into the Financial World. Derivatives play a key role in Financial Engineering, so is the importance of Mathematics and Statistics. The objective of this course is to introduce you to the complex mathematics behind Financial Engineering using simple Excel.

OBJECTIVE

Understanding of different mathematical concepts needed for Financial Engineering in Excel , Understanding different numerical methods based solutions using Excel , Usage of Computational Finance Concepts in Financial Derivatives Pricing and Trading , Understanding of Portfolio theories and asset allocations.

WHO CAN ATTEND

An MBA in Finance or any Finance Professional pursuing CFA/FRM/Actuaries who is aspiring to take up challenging opportunities in Financial Engineering or looking to enter into Full fledged Financial Engineering programs of reputed universities across the world.

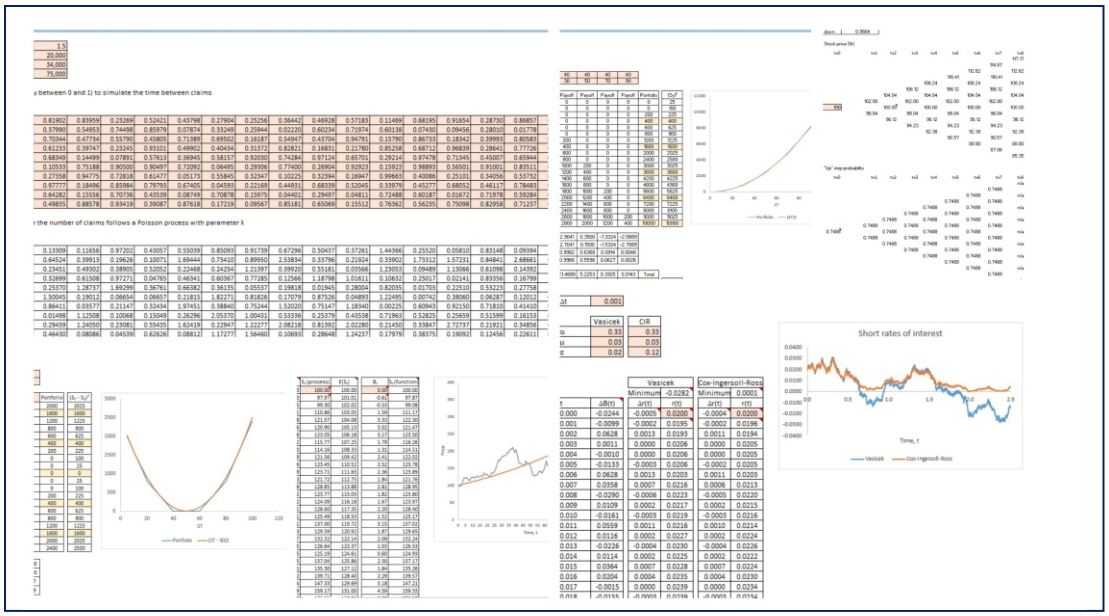


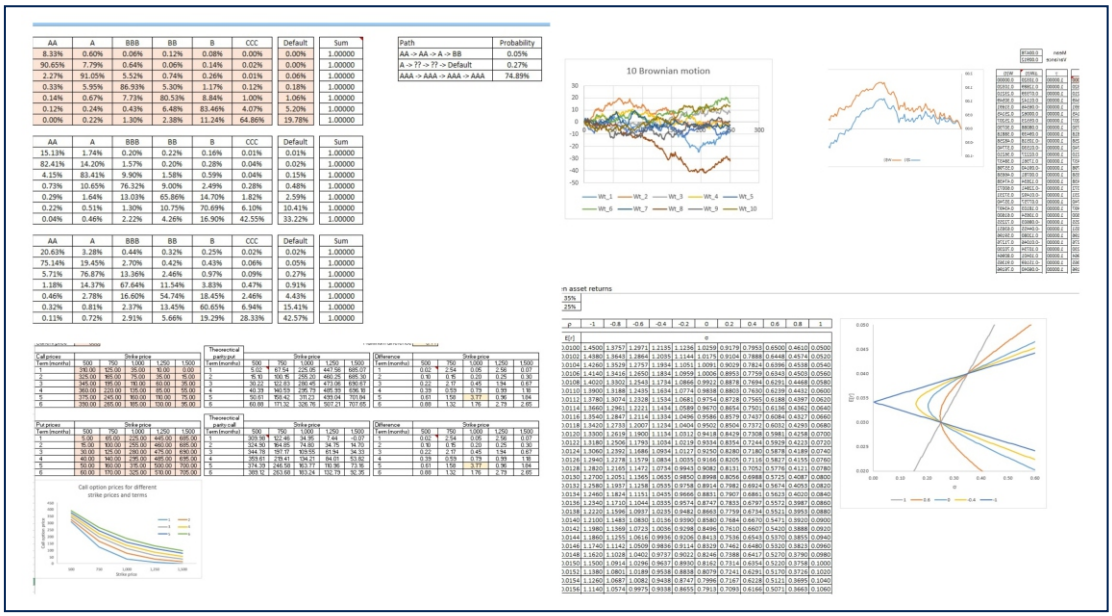
PEDADOGY

An intuitive non-quantitative approach will be employed throughout so that participants develop a feel for risk/reward tradeoffs without relying on complex mathematical formulas. Having said that , participants are encouraged to have laptops with Excel for a chance to manipulate simple but illustrative calculations.

DEMO MODELS

DURING THE PROGRAM YOU WILL LEARN TO CREATE EXCEL MODELS LIKE SHOWN BELOW





FREQUENTLY ASKED QUESTIONS

PREREQUISITE

Knowledge of Basic Excel , Basic Statistics , Stochastic Calculus and Financial Products is must

CERTIFICATE

Silver Certificate on successful completion of projects .
Gold Certification on passing a 2 hours MCQ based exam.

FEES

Rs.8000

DURATION

30+ hours

ABOUT THE TRAINER

Karan Aggarwal is one of India's leading trainers in Financial Modelling, Risk Modelling, Data Analytics and academic programs like Financial Risk Manager (FRM) & Actuarial Science. He has spearheaded several solution accelerators and spreadsheet-based prototypes in Risk and Analytics space. Karan has also authored a number of books on Advanced Excel, Statistical Modelling, Risk Modelling & Machine Learning. He is widely regarded for his problem-solving, thought leadership and intrapreneurship skills. His analytical mindset, solid fundamentals & the thirst to keep learning set him apart as a true authority in this field. Karan has also been awarded the Young Indian Entrepreneur Award by the Confederation Of Indian Industries in the year 2017.

PEAKS 2 TAILS

OUR TRAINEES WORK IN

DUPONT

LG Life's Good

Manyavar Earn Your Respect

XLRI Xavier School of Management For the greater good

TATA MOTORS

Uber

PRIONE BUSINESS SERVICES PRIVATE LIMITED A Catamaran & amazon Venture

Lone Star College University Park The Honors College

St. Xavier's College Calcutta NIHIL ULTRA

GPI GODFREY PHILLIPS INDIA LIMITED

SUN PHARMA

moneytor

सेल SAIL स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड STEEL AUTHORITY OF INDIA LIMITED

primarc

WNS Extending Your Enterprise

OUR SERVICES

1 2 3 4

TRAINING

SOLUTIONING

CONSULTING

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