4.2.2.4 Master of Science in Financial Engineering (Full-Time, Part-Time and Distance Learning)

The Master of Science in Financial Engineering (MFE) is a multi-disciplinary programme that combines finance, mathematics, and computing with a practical orientation to solve problems in finance. The MFE was launched in 1999 by the Centre for Financial Engineering at NUS, the predecessor to RMI. It aims to equip finance and banking industry professionals and fresh graduates with current knowledge and skills in financial innovations and technology. The domain knowledge includes financial product development, modelling of prices, hedging, investment technology, risk analyses and computational methods.

The degree is awarded by the National University of Singapore, administered through the Risk Management Institute (RMI) and comprises teaching staff from the Departments of Finance, Mathematics, Statistics and Applied Probability, Economics and practitioners from the finance industry. It is a multidisciplinary programme that draws from the established strengths of the various NUS Faculties.

There are many MFE programmes available and the RMI MFE distinguishes itself by striving to shape its students into ‘doers’ – people with the theoretical background necessary to approach complex financial problems and the practical know-how to solve these problems.

Admission Requirements

- Good four-year undergraduate degree or an honours degree
- Good TOEFL or IELTS score if English was not the medium of instruction in undergraduate studies
- GMAT or GRE score (optional)
- Relevant work experience will be an advantage

Programme Structure

To graduate from the programme, each candidate is required to complete 40 modular credits (MCs). Of these, there are five core (compulsory) modules and a compulsory financial engineering project equivalent to 4 MCs each. Candidates must also choose additional elective modules. There are also elective modules held overseas that are conducted at an intensive pace over one week.

(I) Graduation Requirements

Students have to fulfill all the following conditions to graduate:

a. Read and pass the following six essential modules:

- FE5101 Derivatives and Fixed Income
- FE5107 Risk Analyses and Management
- FE5110 Financial Engineering Project
- FE5112 Stochastic Calculus and Quantitative Methods
b. Read and pass four or more elective modules, totaling a minimum of 16 modular credits, from the following list:

- FE5103 Equity Products and Exotics
- FE5105 Corporate Financing and Risk
- FE5108 Portfolio Theory and Investments
- FE5208 Term Structure and Interest Rate Derivatives
- FE5210 Research Methods in Finance
- FE5211 Seminar in Financial Engineering
- FE5215 Seminar in Financial Product Innovations
- FE5216 Financial Technology Innovations Seminar
- FE5217 Seminar in Risk Management and Alternative Investment
- FE5218 Credit Risk
- FE5219 Credit Analytics Practicum
- FE5221 Trading Principles & Fundamentals
- FE5222 Advanced Derivatives Pricing
- FE5223 Introduction to Electronic Financial Market
- FE5224 Current Topics in Applied Risk Management
- FE5225 Machine Learning and FinTech
- FE5226 C++ in Financial Engineering
- FE5227 Commodities: Fundamentals and Modelling

For students admitted into the programme, a minimum Cumulative Average Point (CAP) of 3.00 is required for graduation.

(II) Intake
The MFE in Financial Engineering has one intake per year, with candidates joining the programme in August every year.

(III) Duration of the Programme
The minimum and maximum periods of candidature are 18 months and four years for part-time and distance learning students. The minimum and maximum periods of candidature are one year and two years for full-time students.

(IV) Semester
The programme operates in the two regular University Semesters 1 and 2 from August-November, and January-April, and also in the special term from May-July. The Financial Engineering project may be taken in any semester or term.

(V) Classes
In all modules, students will meet teaching staff 12 times for each module. Lectures for both the part-time and full-time programmes are held in the evenings from 7.00pm to 10.00pm or on Saturdays. Each
lecture lasts three hours.

(VI) Leave of Absence
A leave of absence may be granted to a candidate for up to one year only. A candidate who has to leave the programme for longer than that will need to withdraw from the programme. The leave of absence will be included in the maximum period of candidature.

(VII) Termination of Candidature
The candidature may be terminated if a candidate failed twice in the examination of a module, or failed in more than two modules throughout the course of study. No extension of the maximum period of candidature will be permitted. A candidate should also attain a minimum Cumulative Average Point (CAP) of 3.00 to remain in good standing.