

Faculty	Natural Sciences			
Home Department	Mathematics & Applied Mathematics			
Module Topic	Financial Engineering			
Generic Module Name	Financial Engineering			
Alpha-numeric Code	COF716			
NQF Level	8			
NQF Credit Value	15			
Duration	Semester			
Proposed semester to be offered.	Second Semester			
Programmes in which the module will be offered	BSc Hons (Mathematical Science) (3736); BSc Hons (Computational Finance) (3739)			
Year level	7			
Main Outcomes	<p>On completion of this module students should be able to:</p> <ul style="list-style-type: none"> • Have basic knowledge about modeling and evaluation of financial derivatives. 			
Main Content	<ul style="list-style-type: none"> • Forward, Futures and Options Contracts, • Futures Markets and the Use of Futures for Hedging, • Forward and Futures Prices, • Properties of Stock Option Prices (Put-Call Parity), • Valuation of Stock Options, • Ito's Lemma and its Applications, • Analytical Approach of Black-Scholes to Price Stock Options, • Greeks, • Numerical Approaches of Pricing Stock Options (Binomial Trees, Monte Carlo Simulation, Finite Difference Methods) • The Role of Martingales and Measures in Derivatives. 			
Pre-requisite modules	None			
Co-requisite modules	None			
Prohibited module Combination	None			
Breakdown of Learning Time	Hours	Timetable Requirement per week		Other teaching modes that does not require time-table
<i>Contact with lecturer / tutor:</i>	30	<i>Lectures p.w.</i>	2	
<i>Assignments & tasks:</i>	25	<i>Practicals p.w.</i>	1	
<i>Practicals:</i>	15	<i>Tutorials p.w.</i>	0	
<i>Tutorials:</i>	0			
<i>Tests & Examinations:</i>	8			
<i>Selfstudy:</i>	72			
<i>Other:</i>	0			
Total Learning Time	150			
Methods of Student Assessment	Continuous Assessment (CA): 50% Final Assessment (FA): 50%			
Assessment Module type	Continuous and Final Assessment (CFA)			