Course Specification

(Postgraduate Programs)

Course Title:	Financial Engineering
Course Code:	FINA 6208
Program:	Master of Science in Accounting
Department:	Accounting departement
College:	college of Business
Institution:	Imam Mohammad Ibn Saud Islamic University (IMSIU)
Version:	1
Last Revision Date:	

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A. General information about the course:

1. Course Identification:

1. Credit hours: (3 Hours)				
2. Course type				
A.	☐University	☒ College	☐ Department	☐Track
B.	☒ Required		☐ Elective	
3. Level/year at which this course is offered: (Fourth Level/ second year)				
4. Course General Description:				
This course offers an analysis of advanced derivative pricing models. It aims at reviewing the main models and modeling techniques used in practical applications, understanding their applicability and limitations, and at building an integrated framework. This will allow students to 1) decide what stochastic factors (e.g., volatility, jumps, one or more interest rate factors, default intensities) should be incorporated in a reasonable pricing model for a given derivative; 2) formulate a consistent model incorporating the chosen factors; 3) calibrate the model using market data; 4) price the derivative and identify a Hedging strategy.				
5. Pre-requirements for this course (if any)**:**				
N/A				
6. Pre-requirements for this course (if any)**:**				
N/A				
7. Course Main Objective(s):				
By the end of this course, students will be able to: - Understand the need for financial derivatives. - Demonstrate a comprehensive knowledge of options and derivatives. - Price the options, futures, and swaps using various models. - Analyze trading/hedging strategies.				

2. Teaching Mode: (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	36	100%
2	E-learning		
3	Hybrid • Traditional classroom		

No	Mode of Instruction	Contact Hours	Percentage
	• E-learning		
4	Distance learning		

3. Contact Hours: (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	36
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)……**	
	Total	**36**

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods:

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	**Explains derivative pricing models and the need for the main types of derivatives.**	**K1**	**Lectures Discussion Case Studies Problem-based learning**	**• Exams • Group Assignment**
1.2	**Clarifies the models used for financial derivatives pricing and modeling techniques used in practical applications using Islamic Financial Engineering principles.**	**K2**	**Lectures Discussion Case Studies Problem-based learning**	**• Group Assignment • Exams**
2.0	**Skills**			
2.1	**Evaluates financial derivatives through objective critical analysis, to provide**	**S2**	**Lectures Discussion Case Studies**	**• Exams • Group Assignment**

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	creative solutions for problems related to derivatives pricing, speculation and hedging.		Problem-based learning	
2.2	Applies quantitative and/or qualitative methods and information technology to analyze market data in order to formulate a reasonable pricing model.	S4	Lectures Discussion Case Studies Problem-based learning	• Exams • Group Assignment
3.0	**Values, autonomy, and responsibility**			
3.1	Adheres to professional and human values and ethics in dealing with various problems related to financial engineering.	V1	Discussion Research activity	• Group Assignment
3.2	Collaborates effectively within a team to address issues related to financial engineering, taking on leadership role and assuming responsibility.	V3	Discussion Research activity	• Group Assignment

C. Course Content:

No	List of Topics	Contact Hours
1.	Introductions to derivatives Markets (Derivative Markets and Instruments, Role of Derivative Markets, Structure of Derivatives Markets)	3
2.	Principles of Option Pricing (Options Strategies, Principles of Call Option Pricing, Principles of Put Option Pricing, Put-Call Parity Arbitrage)	6

3.	Option Pricing Models: The Binomial Model (One-Period Binomial Model, Two-Period Binomial Model, European Puts and Calls, American Puts and Calls)	6
4.	Option Pricing Models: The Black Scholes Merton Model	3
5.	Greeks and Speculation Strategies	3
6.	Principles of Pricing Forwards, Futures	3
7.	Futures Arbitrage Strategies	3
8.	Forward and Futures Hedging, Spread, and Target Strategies	3
9.	Swaps	3
10.	Islamic financial engineering	3
Total		36

D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Midterm exam 1	5	30%
2.	(Individual/Group) assignments	9	30%
3.	Final Exam	According to the time specified by the college	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities:

1. References and Learning Resources:

Essential References	John C. Hull, Options, Futures, and Other Derivatives, Global Edition, 9th Edition, Pearson.
Supportive References	Robert L. McDonald, Derivatives Markets, Pearson New International Edition, 3rd Edition.
Electronic Materials	www.investopedia.com/terms/f/frm.asp www.udemy.com
Other Learning Materials	www.henrystewartpublications.com/jrmiupindia.in/FinancialRisk_Management.asp

2. Educational and Research Facilities and Equipment Required:

Items	Resources
facilities	Classroom for up to 30 students

Items	Resources
(Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	
Technology equipment (Projector, smart board, software)	**Data projector, internet connection, smart board**
Other equipment (Depending on the nature of the specialty)	**Blackboard platform**

F. Assessment of Course Quality:

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	-Program leaders -Students	- Indirect through student questionnaires. - Indirect through the program leaders' evaluation of quality files.
Effectiveness of students' assessment	-Program leaders -Faculty members	-Direct through periodic review of the course by the Department's Curriculum and Planning Committee -Direct through discussion between program leaders and faculty members.
Quality of learning resources	-Program leaders -Faculty members - Students	-Direct through discussion between program leaders and faculty members. - Indirect through student questionnaires.
The extent to which CLOs have been achieved	-Program leaders -Faculty members	-Direct by measuring CLOs and comparing them with the target level.
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval Data:

COUNCIL /COMMITTEE	**ACCOUNTING DEPARTMENT COUNCIL**
REFERENCE NO.	**second Session of The Third Term**
DATE	**29/08/1444 HIJRI CORRESPONDING TO 21/03/2023**