

**ATTACHMENT 2 (e)**

**Course Specifications**

**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation & Assessment**

**Course Specifications  
(CS)**

***ACTU 478***

Mathematical Modelling of Islamic Finance

## Course Specifications

Institution	Date of Report /
College/Department : Department of mathematics	

### A. Course Identification and General Information

1. Course title and code Mathematical Modelling of Islamic Finance (ACTU 478)		
2. Credit hours (3)		
3. Program(s) in which the course is offered. Actuarial Science (If general elective available in many programs indicate this rather than list programs)		
4. Name of faculty member responsible for the course Faculty of Science		
5. Level/year at which this course is offered 5		
6. Pre-requisites for this course (if any) ACTU 472		
7. Co-requisites for this course (if any)		
8. Location if not on main campus		
9. Mode of Instruction (mark all that apply)		
a. Traditional classroom	<input type="text"/> / <input type="text"/> What percentage?	<input type="text" value="80%"/>
b. Blended (traditional and online)	<input type="text"/> / <input type="text"/> What percentage?	<input type="text"/>
c. e-learning	<input type="text"/> / <input type="text"/> What percentage?	<input type="text" value="10%"/>
d. Correspondence	<input type="text"/> / <input type="text"/> What percentage?	<input type="text" value="10%"/>
f. Other	<input type="text"/> / <input type="text"/> What percentage?	<input type="text"/>
Comments:		

## B Objectives

<p>1. What is the main purpose for this course? A modification to the current FIN 430 course to include Takaful components. Description drafted and agreed upon by Mathematics &amp; Statistics and Finance &amp; Economics interdepartmental committee on Actuarial Science and Financial Mathematics. This course is an introductory course which presents basic, theories, concepts, analytical techniques in the area of risk management, insurance, and Takaful. Topics covered in the course include theory of risk and risk management; identification; measurement and arrangements to deal with risk in a personal and business situation; types of insurance coverage; basic features of selected insurance contracts; principles and models of Takaful; family Takaful contracts; and re-Takaful.</p>
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field).</p> <p>1- introduce more applications and use life data 2- extended with using Finance packages in lecture or practical 3- concentrate the relations with others courses like ACTU 472</p>

## C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
<p>Risk in Our Society</p> <ul style="list-style-type: none"> <li>• Property &amp; liability risks</li> <li>• Perils, hazards</li> <li>• Direct and indirect loss</li> <li>• Pre and post-loss risk management</li> <li>• Risk management process basics</li> <li>• Law of large numbers introduced</li> </ul>	2	6

<p>Insurance and Risk</p> <ul style="list-style-type: none"> <li>• Risk pooling, insurable risks v. hedging</li> <li>• Accidental v. intentional, criminal</li> <li>• Types or lines of insurance</li> <li>• Value of insurance, bonding Insurer side: public policy and affordability/availability, indemnification,</li> <li>• insurance product overview</li> <li>• Undercurrents in pricing, markets in risk management</li> <li>• Retaining risk, value of loss control</li> <li>• Loss of value, economic v. non-economic losses</li> </ul>	2	6
<p>Introduction to Risk Mgmt</p> <ul style="list-style-type: none"> <li>• Client Side: Components of the cost of risk</li> <li>• Risk management process and analysis:</li> </ul> <p>(1) identification of exposures, hazards; (2) assessment of alternatives, use of forecasting and modelling, spread of risk, diversification</p> <ul style="list-style-type: none"> <li>• Valuing losses to property, legal risk</li> <li>• Use of contracts, variety of insurance products</li> <li>• Evaluating the costs of a loss and who impacted</li> <li>• PML and Retaining risk - client side &amp; insurer side</li> <li>• Partnership between parties in commerce, in insurance</li> </ul>	3	6
<p>Advanced Topics in Risk Mgmt</p> <ul style="list-style-type: none"> <li>• Analysis of Strategies for client v. insurer</li> <li>1- Management of physical risk, contract risk</li> <li>2-Cost of risk, resources - drivers, strategic decision making, ERM</li> <li>• Basics of financial side for insurers:</li> <li>1-Underwriting cycle, Solvency II</li> <li>2-Capacity, p/h surplus, securitization</li> <li>3-Ins regulators: 2 to 1;</li> <li>4-Client &amp; cost of risk: 7:1</li> <li>5-Reserving for losses, loss adjustment expenses (LAE), and unearned premium</li> </ul>	3	3
<p>Takāful</p> <ul style="list-style-type: none"> <li>• Takāful Operator</li> <li>• Takāful participant</li> <li>• Takāful undertaking</li> <li>• Technical provisions</li> </ul>	2	6

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	30				60
Credit	2	1				3

3. Additional private study/learning hours expected for students per week.	<input type="text"/>
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
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Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The *National Qualification Framework* provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

**First**, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	Define the concept of Risk in Our Society		
<b>2.0</b>	<b>Cognitive Skills</b>		
2.1	Define the Risk Mgmt, Components of the cost of risk, Valuing losses to property,		
2.2	Evaluating the costs of a loss and who impacted		
<b>3.0</b>	<b>define</b> Management of physical risk, contract risk ,Cost of risk, resources - drivers, strategic decision making. <b>Define</b> Takāful and its operator.		
3.1	Team work and leadership		
3.2			
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
4.1	Using IT for learning and simulation		
<b>5.0</b>	<b>Psychomotor (not applicable)</b>		
5.1			
5.2			

### Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
<b>Knowledge</b>	Define the finance terms: Risk management
<b>Cognitive Skills</b>	
<b>Interpersonal Skills &amp; Responsibility</b>	Analysis of Strategies for client v. insurer
<b>Communication, Information Technology, Numerical</b>	Writing reports for the study in an integrated manner using the finance softwares and optimal packages
<b>Psychomotor</b>	Not applicable

Suggested **verbs not to use** when writing measurable and assessable learning outcomes are as follows:

Consider      Maximize      Continue      Review      Ensure      Enlarge      Understand  
Maintain      Reflect      Examine      Strengthen      Explore      Encourage      Deepen

Some of these verbs can be used if tied to specific actions or quantification.

#### Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest

#### 5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	First Mid-Term Exam	8	25%
2	Second Mid-Term Exam	2	25%
3	Homework and reports		10%
4	Final Exam	17 or later	40%

#### D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)  
Office Hours, Main Library and Network

#### E. Learning Resources

1. List Required Textbooks

Understanding Islamic Finance, 2007

**Author:** Muhammad Ayub

2. List Essential References Materials (Journals, Reports, etc.)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

### F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

2. Computing resources (AV, data show, Smart Board, software, etc.)

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

### G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor

3 Processes for Improvement of Teaching

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution).

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

### Faculty or Teaching Staff:

Signature: \_\_\_\_\_

Received by: \_\_\_\_\_

Date Report Completed: \_\_\_\_\_

Dean/Department Head

Signature: \_\_\_\_\_

Date: \_\_\_\_\_