City University of Hong Kong
Course Syllabus

offered by Department of Management Sciences
with effect from Semester A 2017 /18

Part I   Course Overview

Course Title:	Business Modeling with Spreadsheets
Course Code:	MS3261
Course Duration:	One Semester
Credit Units:	3
Level:	B3
Proposed Area: *(for GE courses only)*	☐ Arts and Humanities ☐ Study of Societies, Social and Business Organisations ☐ Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	Nil
Precursors: *(Course Code and Title)*	Nil
Equivalent Courses: *(Course Code and Title)*	Nil
Exclusive Courses: *(Course Code and Title)*	GE2255 Solving Business Problems with Spreadsheet Modeling CB2011 Solving Business Problems with Spreadsheet Modeling

Part II   Course Details

1. **Abstract**
    (A 150-word description about the course)

    Spreadsheet is a powerful tool for business analysis. This course aims to develop students' ability to formulate, analyse and solve business problems using spreadsheet modeling. Real problems that companies encounter on a day-to-day basis are presented, with the aim of helping students derive applicable principles and link principles to practice. The goal of the course is to train students to become effective modellers who can build sound models to solve business problems in various functional areas of business.

2. **Course Intended Learning Outcomes (CILOs)**
    (CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs#	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	understand managerial problems, collect relevant data, and analyse the data	20%	✓		
2.	build sound models for the managerial problems using spreadsheets	30%		✓	
3.	select appropriate solution method and implement the analysis for the spreadsheet models	30%		✓	
4.	validate the results obtained from spreadsheet models, and communicate and explain the analysis and findings to nonspecialists	20%		✓	✓
	If weighting is assigned to CILOs, they should add up to 100%.	100%			

* If weighting is assigned to CILOs, they should add up to 100%.
 # Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

A1:   Attitude
       Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.
A2:   Ability
       Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.
A3:   Accomplishments
       Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. **Teaching and Learning Activities (TLAs)**
    (TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3	4			
Lectures	In the lectures, students learn the concepts of modeling, formulation of managerial problems in various functional areas, and tools in spreadsheet modeling. They will be provided	✓	✓	✓				

	with opportunities for peer interactions in the lectures.								
Computer-based laboratories	Hands-on experience with the techniques and problem solving activities based on real world business problems. The laboratory sessions consolidate and supplement what the students learn in lectures.	✓	✓	✓					
Group Project	Students work in small groups to solve particular business problems using spreadsheet modeling techniques and tools learned in the course. The project is designed to be a complete decision-making process, including data collection, problem formulation, modeling, analysis, solution methods with appropriate tools, and validation of the results.	✓	✓	✓	✓				

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.						Weighting*	Remarks
	1	2	3	4				
Continuous Assessment: __40__%								
Homework Assignment	✓	✓	✓				20%	
Group Project	✓	✓	✓	✓			20%	
Examination: __60__% (duration: 2 hours, if applicable)								

* The weightings should add up to 100%. 100%

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Homework Assignment	The homework assignments are designed to help students practise their problem-solving skills and obtain hands-on experience using spreadsheet modeling tools.	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Project	Students work in small groups to produce a collaboratively written report. They need to document in a well-written report the details of the spreadsheet model of the business problem, and deliver an oral presentation in the class.	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Examination	The examination covers all topics of the course. It is designed to assess students' understanding on the concepts of spreadsheet modeling, and their ability to apply them to solve business problems.	High	Significant	Moderate	Basic	Not even reaching marginal levels

Part III   Other Information (more details can be provided separately in the teaching plan)

1. **Keyword Syllabus**
   (An indication of the key topics of the course.)

   Introduction to Spreadsheet Modeling
   The Spreadsheet Modeling Process. A systematic approach (discover, diagnose, design and deliver) for exploratory spreadsheet modeling.

   Relationship Analysis
   Structural "what-if" analyses. Analysis using scenario manager and goal seeker. Break-even analysis.

   Optimization with Excel Solver
   Problem formulation. Use of solver. Sensitivity Analysis. Applications includes investment problem, inventory problem, optimal product mix, workforce scheduling, assignment problem, transportation problem, etc.

   Business Analysis through Excel Simulation
   Monte Carlo simulation. Replication using datatable. Random number generation. Applications include production planning, hotel overbooking, gambling game, queueing, etc.

   Project Scheduling
   Critical path method. PERT.

2. **Reading List**
2.1 **Compulsory Readings**
   (Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	B. Render, R.M. Stair Jr., and N. Balakrishnan, "Managerial Decision Modeling with Spreadsheets," 3rd edition, 2014, Prentice Hall.

2.2 **Additional Readings**
   (Additional references for students to learn to expand their knowledge about the subject.)

1.	Wayne L. Winston. Microsoft Excel 2013: Data Analysis and Business Modeling. Microsoft Press, 2014.