

MS3111: DATA ANALYTICS WITH EXCEL VBA

Effective Term

Semester A 2023/24

Part I Course Overview

Course Title

Data Analytics with Excel VBA

Subject Code

MS - Management Sciences

Course Number

3111

Academic Unit

Management Sciences (MS)

College/School

College of Business (CB)

Course Duration

One Semester

Credit Units

3

Level

B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

CB2240 Introduction to Business Programming in Python

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

This course aims to provide an introduction to manipulate data in Excel and create report support systems programmatically using Excel VBA programming language. Students can also use the knowledge learned from this course to develop applications in other areas such as statistical analysis, or financial modelling.

Course Intended Learning Outcomes (CILOs)

CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1 Demonstrate knowledge of general programming logic and demonstrate skills in using VBA as a programming language.	25	x	x	x
2 Manipulate common Excel objects such as ranges, workbooks, and worksheets using VBA programs.	25	x	x	x
3 Create Excel user forms for simple tasks (such as forms embedded with OK and Cancel buttons) and complex tasks (such as selecting multiple items from a Listbox control).	25	x	x	x
4 Design and develop Excel reporting applications using VBA and Python as a supplement to Excel.	25	x	x	x

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 real-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.

Teaching and Learning Activities (TLAs)

TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1 Lectures	The lecturer explains the programming logic and demonstrates VBA	1, 2, 3, 4	

2	In-Class Activities	Students are asked to create VBA for straightforward but realistic business problems to reinforce the logic and syntax taught. Through these in-class exercises, the lecturer can identify the common issues that the students have and give more elaboration as needed. The students can also find out the kinds of mistakes that they have made and learn how to correct them.	1, 2, 3, 4	
3	Take-Home Assignments	A key to successful computer programming is to develop a logical solution for a complex, realistic problem and then turn the solution into a useable program. The activity is a time-consuming process that is impossible to do in class. Students tackle these complex business-related problems as out-of-class assignments. The students may work in small groups to discuss the problems and develop a solution, but create the program individually.	1, 2, 3, 4	

4	Project	The ultimate aim of the course is to provide students with the specialist knowledge and training to create a report support system. Students need to develop one such innovation for a problem they have encountered in other modules or for a scenario specified by the lecturer. The project is a semester-long activity. The students have to submit a proposal in the early part of the semester so that the lecturer can approve the project's scope. The students need to use everything they have learned in this course to create the program. They are encouraged to form small groups to analyze the problems and build the program together. They can always seek help and advice from the lecturer during the semester.	1, 2, 3, 4	
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Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Assignment, pop quiz, test	1, 2, 3, 4	35	The exact weighting for each component shall be determined by the course examiner and to be announced to students at the beginning of the course.
2	Project	1, 2, 3, 4	65	

Continuous Assessment (%)

100

Examination (%)

0

Assessment Rubrics (AR)**Assessment Task**

Assignment, pop quiz, test, and project

Criterion

Scores shall be awarded for each assessment task and project.

Excellent (A+, A, A-)

Demonstrated excellent ability to develop macros and report support system using all EXCEL VBA learned in lectures.

Good (B+, B, B-)

Demonstrated good ability to develop macros and report support system using all EXCEL VBA learned in lectures.

Fair (C+, C, C-)

Demonstrated moderate ability to develop macros and report support system using all EXCEL VBA learned in lectures.

Marginal (D)

Demonstrated basic ability to develop macros and report support system using all EXCEL VBA learned in lectures.

Failure (F)

Failed to demonstrate ability to develop macros and report support system using EXCEL VBA learned in lectures.

Part III Other Information

Keyword Syllabus

Programming with Excel VBA

Basic programming syntax; Alternative selection structure; Repetition structures; VBA functions

Excel User Form

Create and manipulate UserForm controls in Excel.

Working with Excel objects

Workbooks object; Worksheets object; Range object; Chart object; Pivot Table object; Analysis ToolPak; Worksheet functions.

Use Python as a supplement to Excel VBA

Incorporate Python code in Excel VBA for reporting applications.

Reading List

Compulsory Readings

Title	
1	VBA for Modelers, Developing Decision Support Systems with Microsoft Excel, 5th edition, S. Christian Albright. South-Western, 2016

Additional Readings

Title	
1	Excel 2016 Power Programming with VBA, Michael Alexander, John Walkenbach, Richard Kusleika, John Wiley & Sons, 2016.
2	Excel 2016 VBA and Macros, Bill Jelen and Tracy Syrstad, QUE, 2015.
3	Microsoft Excel VBA Programming for the Absolute Beginner, Duane Birnbaum, Course Technology, 2007.
4	Microsoft Excel 2016 Programming by Example: with VBA, XML, and ASP, Julitta Korol. Mercury Learning & Information, 2014.
5	Programming with Microsoft Visual Basic 2015, Diane Zak, Cengage Learning.
6	All of Programming, Andrew Hilton, Anne Bracy, Google Play Books, 2015.
7	Automating Excel with Python, Michael Driscoll, 2021
8	Python for Excel, Felix Zumstein, O' Reilly Media, Inc., 2021