

**Title (Units):** ITEC1005 Effective Use of Spreadsheets for Data Processing (3,1,2)

**Course Aims:** This course aims at providing essential computing skills of spreadsheets for students to use in their future career. After studying this course, students would gain the concepts and skills in using spreadsheets. They would also be able to apply these concepts and skills to analyze various kinds of data.

**Prerequisite:** General Education Core Course from the Information Management Technology Category

**Course Intended Learning Outcomes (CILOs):**

Upon successful completion of this course, students should be able to:

No.	Course Intended Learning Outcomes (CILOs)
	<b>Knowledge</b>
1	Describe and explain various concepts of using spreadsheets and concepts of data analysis
	<b>Professional Skill</b>
2	Perform basic operations and formatings and use different formulae and functions in spreadsheets
3	Use spreadsheets to perform data analysis
4	Summarize and visualize result of data analysis in spreadsheets
5	Automate tasks in spreadsheets
6	Apply the above skills to analyze various kinds of data

**Calendar Description:** This course provides essential computing skills of spreadsheets for students to use in their future career. After studying this course, students would gain the concepts and skills in using spreadsheets. They would also be able to apply these concepts and skills to analyze various kinds of data.

**Teaching and Learning Activities (TLAs):**

CILOs	Type of TLA
1-5	Students will attend lectures to learn the concepts of using spreadsheets and the concepts of data analysis.
1-5	Students will work on assignments to enhance what they have learnt.
2-6	Students will attend laboratory sessions to gain practical skills in using spreadsheets.

**Assessment:**

No.	Assessment Methods	Weighting	CILOs to be addressed	Description of Assessment Tasks
1	Assignments	30%	1-6	Continuous assessments, such as lab exercises, are designed to evaluate students' understanding on the concepts and skills of using spreadsheets for data analysis.
2	Practical Tests	30%	1-6	Practical tests are designed to evaluate students' practical skills in using spreadsheets. Questions are designed to measure students' ability to apply different skills to different scenarios for data analysis.
3	Examination	40%	1-6	Final examination questions are designed to assess how far students have achieved the intended learning outcomes. Questions are designed to measure students' understanding on the concepts of using spreadsheets and the concepts of data analysis, as well as the ability to apply different skills to different scenarios for data analysis.

**Assessment Rubrics:**

<b>Excellent (A)</b>	<ul style="list-style-type: none"> <li>• Achieve the first five CILOs, demonstrating a thorough understanding of the concepts involved in data analysis using spreadsheets</li> <li>• Able to perform various basic operations and formattings and use various formulae and functions in spreadsheets</li> <li>• Able to use spreadsheets to perform analysis for various kinds of data, summarize and visualize the analysis result in spreadsheets</li> <li>• Demonstrate an excellent ability to automate various tasks in spreadsheets</li> </ul>
<b>Good (B)</b>	<ul style="list-style-type: none"> <li>• Achieve the first five CILOs, demonstrating a good understanding of the concepts involved in data analysis using spreadsheets</li> <li>• Able to perform a good number of basic operations and formattings and use a good number of formulae and functions in spreadsheets</li> <li>• Able to use spreadsheets to perform analysis for many kinds of data, summarize and visualize most of the analysis result in spreadsheets</li> <li>• Demonstrate a good ability to automate tasks in spreadsheets</li> </ul>
<b>Satisfactory (C)</b>	<ul style="list-style-type: none"> <li>• Achieve the first five CILOs, demonstrating a basic level of understanding of the concepts involved in data analysis using spreadsheets</li> <li>• Able to perform some typical operations and formattings and use some popular formulae and functions in spreadsheets</li> <li>• Able to use spreadsheets to perform analysis for typical kinds of data, summarize and visualize some of the analysis result in spreadsheets</li> <li>• Demonstrate a basic level of ability to automate tasks in spreadsheets</li> </ul>
<b>Marginal Pass (D)</b>	<ul style="list-style-type: none"> <li>• Achieve the first five CILOs, demonstrating a minimal level of understanding of the concepts involved in data analysis using spreadsheets</li> <li>• Able to perform a limited number of basic operations and formattings and use a limited number of formulae and functions in spreadsheets</li> <li>• Able to use spreadsheets to perform analysis for simple data, summarize and visualize some of the analysis result in spreadsheets</li> <li>• Demonstrate a basic level of ability to automate some simple tasks in spreadsheets</li> </ul>
<b>Fail (F)</b>	<ul style="list-style-type: none"> <li>• Achieve less than three of the CILOs, and have little understanding of the concepts involved in data analysis using spreadsheets</li> <li>• Unable to perform basic operations and formattings and use formulae and functions in spreadsheets</li> <li>• Unable to use spreadsheets to perform data analysis</li> <li>• Unable to automate tasks in spreadsheets</li> </ul>

#### Course Content and CILOs Mapping:

<b>Content</b>		<b>CILO No.</b>
I	Introduction to spreadsheets	1, 2, 4
II	Advanced functions and decision making	1, 2
III	Data analysis	1, 3, 6
IV	Summarizing and reporting data	1, 3, 4, 6
V	Programming with Visual Basic	1, 5
VI	Sharing, publishing, and presenting data	1, 4

#### References:

- B. Jelen and M. Alexander, Excel 2016 Pivot Table Data Crunching, Que, 2016
- C. Frye, Microsoft Excel 2016 Step by Step, Microsoft Press, 2015
- D. Etheridge, Excel Data Analysis: Your Visual Blueprint for Creating and Analyzing Data, Charts and PivotTables, 3rd edition, Visual, 2010
- J. Walkenbach, Excel 2010 Power Programming with VBA (Mr. Spreadsheet's Bookshelf), Wiley, 2010
- **C. Manning and C. M. Swinson, Microsoft Office Excel Complete 2013: A Skills Approach**, McGraw-Hill, 2014
- C. Carlberg, Business Analysis: Microsoft Excel 2010 (MrExcel Library), Que, 2010
- **C. Carlberg, Decision Analytics: Microsoft Excel**, Que, 2014

- B. Jelen, Microsoft Excel 2010 In Depth, Que, 2010
- M. Russo and A. Ferrari, Microsoft PowerPivot for Excel 2010: Give Your Data Meaning, Microsoft Press, 2010
- M. Smart, Learn Excel 2016 Essential Skills with The Smart Method, The Smart Method, 2016
- **T. J. O'Leary and L. I. O'Leary, Microsoft Excel 2010: A Case Approach**, McGraw-Hill, 2011
- W. Winston, Microsoft Excel 2013 Data Analysis and Business Modeling, 1<sup>st</sup> Edition, O' Reilly Media, 2014

## **Course Content:**

### **Topic**

- I. Introduction to spreadsheets
  - A. Basic concepts and operations
  - B. Formatting worksheets
  - C. Simple formulae and functions
  - D. Graphs and charts
- II. Advanced functions and decision making
  - A. Financial functions
  - B. Logical functions
  - C. Lookup and reference functions
- III. Data analysis
  - A. Solving problems by performing What-if analysis
  - B. Correlation/regression analysis
- IV. Summarizing and reporting data
  - A. Basic concepts of PivotTables
  - B. Creating a PivotTable
  - C. Change, format, and configure the PivotTable
  - D. Creating a PivotChart from a PivotTable
- V. Programming with Visual Basic
  - A. Basic concepts of Macros
  - B. Using Macros to automate tasks
  - C. VBA programming
  - D. Forms and controls
- VI. Sharing, publishing, and presenting data
  - A. Advanced skills in creating and formatting graphs and charts
  - B. Restricting data and protecting workbooks
  - C. Using Excel with the other office applications
  - D. Sharing data on the web