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| **Course Code and Title: *INTRODUCTION TO COMPUTING (ITE 100)*** |
| **Lesson Number: Lesson 13 (Week 13)** |
| **Topic:** Numerical and mathematical functions |
| **Introduction:**  Microsoft Excel is a program allowing you to collate, analyze, and type data in various formats. Gone are the times of needing a calculator to manually compute results from your data analysis with just a few clicks of the mouse. It is important to know a couple of basic concepts of using Excel before working with functions or calculations, understanding the difference between the terms function and formula, using the formula bar, and guidelines for typing a formula or function. |
| **Learning Objectives:**  At the end of the lesson, you should be able to:   * Create and format tables. * Create a spreadsheet. * Demonstrate different numerical and mathematical functions. |
| **Pre-Assessment:**  **Multiple Choice:** Choose the letter of the best answer. Write your answer on the sheet provided. (2 pts. each)  1. Function returns the average (arithmetic mean) of the numbers provided.  A. Sum C. Count  B. Average D. Max  2. Function adds all numbers in a range of cells and returns the result.  A. Sum C. Count  B. Average D. Max  3. Function returns the largest value from the numbers provided.  A. Sum C. Count  B. Average D. Max  4. Function returns the smallest value from the numbers provided.  A. Sum C. Count  B. Min D. Max  5. Function counts the number of cells containing numbers and the number of arguments containing numbers.  A. Sum C. Count  B. Average D. Max |
| **Lesson Presentation:**  **Entering Formulas and Functions**   * A formula performs calculations, such as adding, subtracting, averaging, and multiplying. * To enter a formula in a cell, first, type an equal sign (=). This symbol, called the formula prefix, identifies the data as a formula and not a label. * For the formula, you can enter cell references, arithmetic operators, and/or functions. * A function is a prewritten formula that automatically calculates a value based on data you insert. * To enter a function, type the equal sign (=), the name of the function (such as SUM), an opening parenthesis, the value(s), cell, or range of cells to be calculated in the function (referred to as the argument), and then the closing parenthesis. * You can use the AutoSum feature, located in the Editing group on the Home tab, as a shortcut for entering the SUM function. * You can use the Copy and Paste commands, the drag-and-drop method, or the fill handle to copy data.   **Relative and Absolute Cell References:**   * When you copy cells that contain formulas, the cell references change to accommodate the new location. This is called a relative cell reference. * If you want a cell referenced value in a formula to remain constant when copied, you need to make it an absolute cell reference. This means that the content of the cell will not change when copied to another cell. * To create an absolute cell reference, type a $ before the column letter and a $ before the cell reference row number to remain the same. For example, $A$4 is an absolute cell reference for cell A4.   **Lookup Reference Function**    The VLOOKUP (Vertical lookup) function looks for a value in the leftmost column of a table and then returns a value in the same row from another column you specify.  1. Insert the VLOOKUP function shown below.  VLookup Function in Excel  **Functions**    **Numerical / Mathematical Functions**  **The SUM** function adds all numbers in a range of cells and returns the result.  **The AVERAGE** function returns the average (arithmetic mean) of the numbers provided.  **The COUNT** function counts the number of cells containing numbers and the number of arguments containing numbers.  **MAX** function returns the largest value from the numbers provided.  **MIN** function returns the smallest value from the numbers provided. |
| **Synthesis**:   * The primary use of Excel spreadsheets is to enter, calculate, manipulate, and analyze numbers. * Alphabetic text information in cells is referred to as labels; numeric information in cells that can be calculated is referred to as values. * A formula is a type of data that performs a calculation. To enter a formula in a cell, you must first type an equal sign. * A function is a built-in formula that performs calculations ranging from simple to complex. * The AutoSum feature enables you to add a range of cells quickly.   **Adding Objects to a Spreadsheet:**   * You can add clip art, photos, and other objects to a spreadsheet to enhance its appearance. * You can use tools in the Illustrations group on the Insert tab to add objects, such as Pictures, Clip Art, Shapes, and SmartArt graphics. * SmartArt is a collection of professionally created diagrams. |
| **Evaluation: Lesson 12: Week 12**  Create a spreadsheet using the following information. You have been tasked with creating a Company Payroll for November. Use a short bond paper. Draw a border and table. Add column letters and row numbers. You are free to change the employee's name.  Compute the following:  **GROSS PAY** = PAY RATE \* TOTAL HOURS  **INCOME TAX** = 10% OF THE GROSS PAY  **TOTAL DEDUCTIONS** = INCOME TAX +SSS + PAG-IBIG  **NET PAY** = GROSS PAY – TOTAL DEDUCTIONS   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | EMPLOYEE NAME | PAY RATE | TOTAL HOURS | GROSS PAY | DEDUCTIONS | | | TOTAL DEDUCTIONS | NET PAY | | INCOME TAX | SSS | PAG- IBIG | | Snow, John | 500 | 45 |  |  |  | 100 |  |  | | Sparrow, Jack | 450 | 44 |  |  |  | 100 |  |  | | Targaryen, Daenerys | 400 | 42 |  |  |  | 100 |  |  | | Dixon, Daryl | 500 | 43 |  |  |  | 100 |  |  | | Cullen, Edward | 420 | 40 |  |  |  | 100 |  |  | | Kent, Clark | 500 | 42 |  |  |  | 100 |  |  |   The following spreadsheet shows the formulas you need to complete the spreadsheet. |
| **REINFORCEMENT**  1.Explain the step by step in adding tables.  2. Create a spreadsheet using the following information.  You have been asked to prepare a spreadsheet to show the profit and loss figure for the last financial year.  The profit and loss should be shown as dollars.   * + 1. Enter the raw data below, applying as many presentation Features (Font, Font Size, Font Color, Number Formats and Color, Cell Shading, Text Rotation, etc.) to it as you wish.     2. Apply appropriate number formats to your numbers.     3. Center your spreadsheet horizontally on the page.     4. Give your spreadsheet an appropriate title and center it across your spreadsheet.     5. Select the best page orientation for your spreadsheet.   6.Create formula's to calculate the profit/loss as a currency for each month.  7. Create formulas to calculate the Annual Totals for Income, expenditure, and profit/loss.  8. Create a formula to calculate the profit/loss for the whole year.  9. Setup an appropriate header for this spreadsheet.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | Month | Income | Expenditure |  | |  | March | 1259.9 | 1410.45 |  | |  | April | 1163.98 | 1499.10 |  | |  | May | 1533 | 1370.25 |  | |  | June | 1774 | 1440.8 |  | |  | July | 1631 | 1530.25 |  | |  | August | 1658 | 1490.55 |  | |  | September | 1781 | 1369 |  | |  | October | 1821.54 | 1420 |  | |  | November | 2233.82 | 1611.81 |  | |  | December | 2537.22 | 1577.63 |  | |  | January | 1650 | 1423.98 |  | |  | February | 1623 | 1598.12 |  | |  |  |  |  |  |   The following spreadsheet is an example of how your spreadsheet should look; you can feel free to try different color combinations.  http://www.abacustraining.biz/images/Exercises/Excel/ExcelIEX4A.gif  The following spreadsheet shows the formulas you need to complete the spreadsheet.  http://www.abacustraining.biz/images/Exercises/Excel/ExcelIEX4AF.gif |
| **References:**  **ONLINE RESOURCES:**  Excel Formulas and Functions <https://www.youtube.com/watch?v=Jl0Qk63z2ZY>  Introduction to Functions of Microsoft Excel <https://www.thetraininglady.com/functions-excel/#:~:text=COUNT%20Function.%201%20Place%20your%20cursor%20in%20cell,consultants%20we%20have%20so%20use%20the%20...%20> |