



**Department of English Language**

**College of Basic Education**

**Salahaddin University-Erbil**

**Subject: Advanced Excel**

**Course Book – 4<sup>th</sup> Year**

**Lecturer's name: Dr Dler Mustafa Khidhr**

**Academic Year: 2023 - 2024**

**Second Semester Course Book**

1. Course name	Computer Skills
2. Lecturer in charge	<b>Dr Dler Mustafa Khidhr</b>
3. Department/ College	Mathematics / Basic Education
4. Contact	e-mail: <a href="mailto:Dler.khidhr@su.edu.krd">Dler.khidhr@su.edu.krd</a> (op
5. Time (in hours) per week	Theory: 1 Practical: 2
6. Office hours	Availability of the lecturer to the student during the week
7. Course code	

<b>8. Teacher's academic profile</b>	<b>PhD in Applied Bayesian Statistics</b>
<b>9. Keywords</b>	<b>Advanced Excel, , function, pivot</b>
<p><b>10. Course overview:</b>  <b>The Advanced Excel course is designed to deepen participants' knowledge, hone their skills, and enhance their proficiency in using the powerful features and functions of Microsoft Excel. Through comprehensive instruction and hands-on exercises, participants will gain a comprehensive understanding of advanced formulas and functions, including nested and matrix formulas, as well as cutting-edge data analysis techniques such as PivotTables, Power Query, and What-If analysis tools. They will develop proficiency in data visualization, and master advanced graphing techniques and conditional formatting to communicate ideas effectively. Additionally, participants will learn data management strategies to integrate, clean, and validate data, along with automation techniques using macros and VBA programming to streamline workflow and increase efficiency. Collaboration and sharing functions will also be explored, enabling participants to securely protect workbooks, track changes, and share them. Throughout the course, emphasis is placed on practical practice, real-life case studies, and practical applications, enabling participants to confidently apply their advanced Excel skills in professional settings, thus raising their productivity and capabilities.</b></p> <p>An advanced Excel course typically delves into the more sophisticated features and functions of Microsoft Excel, building upon the foundational knowledge gained in beginner and intermediate courses. Here's a general overview of what such a course might cover:</p> <ol style="list-style-type: none"> <li><b>1. Advanced Formulas and Functions:</b> <ul style="list-style-type: none"> <li>○ Nested functions</li> <li>○ Array formulas</li> <li>○ Logical functions (IF, AND, OR)</li> <li>○ Lookup and reference functions (VLOOKUP, HLOOKUP, INDEX, MATCH)</li> <li>○ Date and time functions</li> <li>○ Text functions</li> <li>○ Statistical functions</li> </ul> </li> <li><b>2. Data Analysis Tools:</b> <ul style="list-style-type: none"> <li>○ Data validation and data validation lists</li> <li>○ What-If Analysis tools (Scenario Manager, Goal Seek, Data Tables)</li> <li>○ PivotTables and PivotCharts</li> <li>○ Power Query for data importing, transformation, and connection</li> <li>○ Power Pivot for advanced data modeling and analysis</li> </ul> </li> <li><b>3. Data Visualization:</b> <ul style="list-style-type: none"> <li>○ Advanced chart types (Waterfall, Pareto, Radar, etc.)</li> <li>○ Customizing charts (formatting, labels, titles)</li> <li>○ Sparklines for mini charts within cells</li> <li>○ Conditional formatting for visualizing data trends and patterns</li> </ul> </li> <li><b>4. Data Management:</b> <ul style="list-style-type: none"> <li>○ Data consolidation</li> <li>○ Data validation rules and custom error alerts</li> <li>○ Managing and cleaning data (text to columns, remove duplicates, etc.)</li> <li>○ Grouping and outlining data</li> </ul> </li> <li><b>5. Automation and Efficiency:</b> <ul style="list-style-type: none"> <li>○ Macros and VBA (Visual Basic for Applications) programming basics</li> <li>○ Creating and running macros</li> <li>○ Introduction to VBA editor and debugging</li> <li>○ Using VBA to automate repetitive tasks and extend Excel's functionality</li> </ul> </li> <li><b>6. Collaboration and Sharing:</b> <ul style="list-style-type: none"> <li>○ Workbook protection and sharing</li> </ul> </li> </ol>	

- Tracking changes and comments
  - Sharing workbooks via OneDrive or SharePoint
  - Version control best practices
7. **Advanced Excel Tips and Tricks:**
- Keyboard shortcuts for increased productivity
  - Advanced data analysis techniques
  - Efficiency hacks for large datasets
  - Best practices for organizing and structuring workbooks
8. **Case Studies and Practical Applications:**
- Real-world examples and case studies demonstrating the application of advanced Excel techniques in various industries and scenarios
  - Hands-on projects to reinforce learning and skills application

Overall, an advanced Excel course aims to equip participants with the skills and knowledge needed to effectively analyze, manipulate, visualize, and present data using Excel, thereby enhancing their productivity and decision-making capabilities in professional settings.

#### **11. Course objective:**

- Give student's in-depth understanding of why computers are essential components in business, education and society.

- Introduce the fundamentals of computing devices and reinforce computer vocabulary, particularly with respect to personal use of computer hardware and software, the Internet, networking and mobile computing.
- Provide hands-on use of Microsoft Office applications Word, Excel, Access and PowerPoint. Completion of the assignments will result in MS Office applications knowledge and skills.
- Provide foundational or “computer literacy” curriculum that prepares students for lifelong learning of computer concepts and skills
- Recognize when to use each of the Microsoft Office programs to create professional and academic documents.
- Use Microsoft Office programs to create personal, academic and business documents following current professional and/or industry standards.
- Learning and studying software or programming as per department requirements.

### 12. Student's obligation

- Student should attend lectures (theory part) and practicing in computer laboratories.
- Student should attend exams during the course.
- Home works
- Quizzes
- Team work projects

### 13. Forms of teaching

To achieve the objectives of the course, the following methods and techniques will be followed during teaching process:

1. Lecture notes will be handled to the students at the beginning of each part to facilitate easier understanding of books and also to read references.
2. Power point presentation for parts of the course as required.
3. White board will be used to explain program commands, draw sketches and solve problems in the lab.
4. Computer labs for practicing the theoretical parts.

### 14. Assessment scheme

The student must provide the following quizzes and exams during the course:

Effort (50 %)		Final Exam (50 %)	Total
Lab Practices*	Midterm Exam (Theoretical)	Theoretical	
<b>40%</b>	<b>10%</b>	<b>50%</b>	<b>100%</b>

\* Quizzes and homework's are performed at the lab practices during the course.

### 15. Student learning outcome:

Students are expected at the end of the year will have the abilities to:

- Identify the hardware components of a personal computer system
- List major input and output devices
- Explain the functions of processing, memory, storage and communication devices
- Realize the significance of each hardware component in processing information

- Identify general trends in the development of the different hardware components of a computer
- General student knowledge (typing ability, excel, PowerPoint, data analysis, etc.)
- Introduction to internet, e-mails, .....etc.

**16. Course Reading List and References:**

Students may use the lecture notes and the following references:

- **Microsoft Office 2016 Step by Step, Joan Lambert and Curtis Frye, Microsoft Press,2015.**
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**17. The Topics:**

**Lecturer's name**

**18. Practical Topics (If there is any)**

**Advanced Ms. Excel (Computer Application)**

<b>Week</b>	<b>Theory Subject</b>
<b>1</b>	<b>What Is Microsoft Excel What Are the Benefits of MS Excel? What Jobs Use Excel Spreadsheets?))</b>
<b>2</b>	<b>Reference Another Sheet or Workbook in Excel</b>
<b>3</b>	<b>Data Vs. Information + <i>What Is Data?</i></b>
<b>4</b>	<b>Checking and Evaluating Data (Error Types) + Syntax of some Math function</b>
<b>5</b>	<b>Planning for Creating School Projects by Excel + Syntax for some advanced logical function</b>
<b>6</b>	<b>Summarizing Data with Pivot Tables</b>
<b>7</b>	<b>Statistical data Analysis such as Correlation and Linear Regression</b>
<b>8</b>	<b>How to Find External Links and References in Excel</b>

<b>9</b>	<b>Solving Equations + Optimization with Excel+ Invers of Matrix</b>
<b>10</b>	<b>Exam</b>
<b>11</b>	
<b>12</b>	<b>Planning for Creating Salary Projects</b>
<b>13</b>	<b>Relation Ms. Excel with Database</b>
<b>14</b>	
<b>15</b>	<b>VBA Guide to Using Checkboxes in Excel.</b>
<b>20. Extra notes:</b>	
<ul style="list-style-type: none"> <li>● Mobile phones should be turned off during the lecture time.</li> <li>● Students should come to the lecture on time, if you are late, ask for permission and come in quietly.</li> <li>● Class attending without lecture notes is not allowed.</li> <li>● Try not to leave the class without a good reason, if you need it, leave quietly after permission.</li> <li>● The Final Exam will include all topics of the lectures.</li> <li>● Students should come in the lab on time. Late students will not be admitted to the lab without an acceptable reason, and they will get a zero grade for the missing lab. ● Leaving the group and wandering is not allowed.</li> <li>● Using memory devices (USB, CD, DVD ....) with the lab computers is not allowed. ● Students are responsible for any loss or damage of devices. ● Damage to devices must be reported immediately</li> </ul>	
<b>21. Peer review</b>	