

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
PETRO MOHYLA BLACK SEA NATIONAL UNIVERSITY

Faculty of Economic Sciences  
Department of accounting and auditing

“APPROVED”  
The first vice-rector  
Yurii KOTLIAR

“ ” 2024

**PROGRAM OF THE COURSE  
ACCOUNTING AND ANALYSIS IN DIGITAL ECONOMY**

Specialty 071 "Accounting and taxation"

Educational program "Accounting and auditing of entrepreneurial activity"

Level of higher education – third (PhD)

Developer:

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Mykolaiv – 2024

### 1. Description of the academic discipline

<b>Indicator</b>	<b>Characteristics of the discipline</b>	
Title	Accounting and Analysis in Digital Economy	
Branch of knowledge	07 Management and administration	
Specialty	071 "Accounting and taxation"	
Specialization (if any)	none	
Educational program	Accounting and auditing of entrepreneurial activity	
Level of higher education	third (PhD)	
Discipline status	Optional	
Year of study	2	
Academic year	2024–2025	
Semester number(s):	Full-time form	
	4	
Total number of ECTS credits/hours	4 ECTS / 120 hours	
Course structure:	Full-time form	
	– lectures	20
	– practice session	20
	– hours of independent student work	80
Percentage of classroom load	33%	
Language of teaching	English	
Intermediate control form (if any)	none	
Final control form	Exam	

## 2. Purpose, tasks and results of studying the discipline

The discipline "Accounting and Analysis in Digital Economy" aims to form in students fundamental theoretical knowledge of the essence and expediency of using computer systems and technologies in accounting and analysis, the formation of practical skills regarding the procedure for functioning and using accounting information systems and computer programs for accounting and analysis in the conditions of digitalization of economic processes.

**The subject** of the academic discipline is computer systems and technologies, the possibilities of their use in accounting and analysis for the digitalization of accounting functions.

The study of the discipline includes classroom - lecture and practical classes, as well as independent work, including individual, which ensures the consolidation of theoretical knowledge, contributes to the acquisition of practical skills in the use of digital information systems for accounting and analytical functions.

**As a result** of studying the course "Accounting and Analysis in the Digital Economy", higher education students should:

**know:**

- approaches to defining the concept of digitalization of accounting and analysis and its role in the digital economy;
- the state of the processes of digitalization of accounting and analysis in Ukraine;
- key concepts and parameters of the functioning of automated information systems in the conditions of digitalization of accounting and analysis;
- the place and importance of accounting and analytical systems in the information provision of information users in solving problems of business entities' activities;
- the basics of building and organizing the accounting process using digital technologies;
- features of the functioning of enterprises in the digital environment and demonstrate an understanding of their market positioning;
- the main types of risks associated with the digitalization of accounting and analysis;
- the possibilities of using the network for processing and transmitting accounting and analytical information.

**be able to:**

- determine the economic efficiency of implementing accounting and analytical programs at the enterprise;
- identify the characteristics of the digital economy;
- analyze current trends in the software market for the purposes of digitalization of accounting and management;
- apply ethical principles when performing professional duties.

### Program learning competencies

**General competences:**

GC01. Ability to abstract thinking, analysis and synthesis.

GC02. Ability to search, process and analyze information from various sources.

**Special (professional) competences (SC)**

SC01. The ability to plan and carry out original research, to achieve scientific results that create new knowledge in accounting, analysis, auditing and taxation and related interdisciplinary areas.

SC02. Ability to identify, formulate and solve research problems in the field of accounting, analysis, control, audit, taxation, evaluate and ensure the quality of research.

SC04. Ability to conduct empirical research to establish trends in the development of research objects in the field of accounting, analysis, control, audit, taxation.

### Learning outcomes

LO 01. Have conceptual and methodological knowledge of accounting, analysis, control, audit, taxation and related fields, as well as the skills necessary to conduct scientific and applied research, implement innovations at the level of the latest world achievements in the relevant field.

LO 02. Search, analyze, critically interpret and systematize information obtained from various scientific and practical sources and major national, European, international regulatory and legal acts on the regulation of accounting, analysis, audit, and taxation.

LO 05. Formulate and test hypotheses; use appropriate evidence to substantiate conclusions, in particular, the results of theoretical analysis, empirical research (surveys, observations, etc.) and mathematical and/or computer modeling, available literary data on the regulation of accounting, analysis, audit, and taxation.

LO 08. Apply modern digital technologies and specialized software in scientific and teaching activities.

LO 09. Identify scientific and practical problems, test the results of scientific research, conclusions and practical recommendations in accounting, analysis, control, audit, taxation and promote their implementation in scientific and practical spheres.

## 2. Program of academic discipline

№		Total hours	Lecture	Practice	Individual work
1	Digitalization of accounting in digital economy and society	4	2	-	2
2	Information systems and technologies in the conditions of digitalization of society, economy and accounting	7	2	1	4
3	Main trends of the impact of IT	7	2	1	4
4	Electronic document flow as a tool for digitalization of the economy	6	2	-	4
5	Specialized computer programs for automation of accounting and analysis	8	2	2	4
6	Internet trade in the conditions of digitalization of the economy: opportunities for development and accounting	8	2	2	4
7	E-business: advantages and risks in the period of digital transformation of accounting	8	2	2	4
8	Accounting for electronic money distribution operations	8	2	2	4
9	Basic work with MS Power BI	24	4	10	10
10	Online course on the Prometheus platform (Machine learning)	20	-	-	20
11	Online course on the Prometheus platform (Data Analysis in R)	20	-	-	20
	<b>Total hours</b>	120	20	20	80

### 2.1. Content of the academic discipline

#### 2.2. Plan of lectures

№	Topic and plan
1	<b>Digitalization of accounting in digital economy and society</b> The concept of digitalization of economic processes, digital society, digital economy. The main advantages of digitalization, the main stages of the process. Digitalization of economic processes in Ukraine. Key areas of use of digital technologies. Characteristic features of accounting and analysis in the digital society and economy. Advantages of digitalization of accounting.

2	<p><b>Information systems and technologies in the conditions of digitalization of society, economy and accounting</b></p> <p>General characteristics of the development and use of information technologies (IT) and information systems (IS) in accounting. The concept of information technologies and information systems and their role in accounting. Information security and protection of accounting information. Stages of IS development and their impact on accounting automation. Corporate information portal as a tool for integrating business applications. Integrated accounting information environment.</p>
3	<p><b>Main trends of the impact of IT</b></p> <p>Characteristics of the main trends: robotization of production processes, cloud technologies; Internet of Things, Big data, artificial intelligence, distributed ledger technology and blockchain. Basic methods of artificial intelligence. Machine and deep learning.)</p> <p>Characteristics of Big Data technology and related concepts. Main trends in accounting related to the development of Big Data technology. Functional features of blockchain. The impact of distributed data technology and blockchain on accounting practice.</p>
4	<p><b>Electronic document flow as a tool for digitalization of the economy</b></p> <p>Electronic document, electronic signature, original electronic document, legal status of an electronic document and its copy. Organization of electronic document flow. Storage of electronic documents and archives of electronic documents</p>
5	<p><b>Specialized computer programs for automation of accounting and analysis</b></p> <p>Procedure and criteria for selecting optimal computer programs and systems for the purposes of digitalization of accounting and analysis at the enterprise. The main advantages of digitalization of accounting. Requirements for accounting software. Stationary and cloud accounting programs. Characteristics of online services, advantages of their use. Software platform. Software configurations. Functional capabilities of software products. Comparison of capabilities of various software products for accounting and analysis.</p>
6	<p><b>Internet trade in the conditions of digitalization of the economy: opportunities for development and accounting</b></p> <p>The essence of Internet trade. Regulatory and legal regulation of Internet trade. Features of accounting and taxation of Internet trade. Accounting for costs of creating and operating an online store. Features of calculating depreciation on a WEB site. Classification of transactions in trade through an online store for accounting purposes.</p>
7	<p><b>E-business: advantages and risks in the period of digital transformation of accounting</b></p> <p>The feasibility of creating, conducting and developing electronic business. Key areas of conducting electronic business. Advantages of conducting electronic business using network technologies. Risks associated with conducting electronic business.</p>
8	<p><b>Accounting for electronic money distribution operations</b></p> <p>Stages of electronicization of the monetary sphere. Regulatory and legal support for operations using electronic payment instruments. Definition and essence of the term "electronic money". Comparative characteristics of modern forms of money. Classification of electronic money. Features of settlements using electronic money. Accounting for electronic money. Advantages of using electronic money in the modern world.</p>
9	<p><b>Basic work with MS Power BI</b></p> <ol style="list-style-type: none"> <li>1. Acquaintance with the capabilities of the program</li> <li>2. Data sources for downloading.</li> <li>3. The main menu of the program, the visualization unit, models view and the tables view</li> </ol>
10	<p><b>Basic work with MS Power BI</b></p> <ol style="list-style-type: none"> <li>1. Visualization of financial data in terms of company expenses</li> <li>2. Loading and clearing data</li> <li>3. Building a data model, connections between tables</li> <li>4. Adding visual elements</li> </ol>

### 2.3. Plan of practical classes

№	Topic and plan
1	<p><b>Information systems and technologies in the conditions of digitalization of society, economy and accounting</b>            Stages of IS development and their impact on accounting automation. Corporate information portal as a tool for integrating business applications.</p> <p><b>Main trends of the impact of IT</b>            Characteristics of Big Data technology and related concepts. Main trends in accounting related to the development of Big Data technology. Functional features of blockchain. The impact of distributed data technology and blockchain on accounting practice.</p>
2	<p><b>Specialized computer programs for automation of accounting and analysis</b>            Stationary and cloud accounting programs. Characteristics of online services, advantages of their use. Software platform. Software configurations. Functional capabilities of software products. Comparison of capabilities of various software products for accounting and analysis.</p>
3	<p><b>Internet trade in the conditions of digitalization of the economy: opportunities for development and accounting</b>            Accounting for costs of creating and operating an online store. Features of calculating depreciation on a WEB site. Classification of transactions in trade through an online store for accounting purposes.</p>
4	<p><b>E-business: advantages and risks in the period of digital transformation of accounting</b>            Advantages of conducting electronic business using network technologies. Risks associated with conducting electronic business.</p>
5	<p><b>Accounting for electronic money distribution operations</b>            Comparative characteristics of modern forms of money. Classification of electronic money. Features of settlements using electronic money. Accounting for electronic money. Advantages of using electronic money in the modern world.</p>
6	<p><b>Basic work with MS Power BI. Financial data analysis</b>            1. Visualization of financial data in terms of company expenses            2. Loading and clearing data            3. Building a data model, connections between tables            4. Adding visual elements</p>
7	<p><b>Basic work with MS Power BI. Financial data analysis</b>            1. Adding Area charts: Basic (Layered) and Stacked, Gauge charts, KPIs            2. Bar and column charts, Combo charts, Doughnut charts, Line charts            3. Basic map, Matrix            4. Decomposition tree</p>
8	<p><b>Basic work with MS Power BI. Non-financial data analysis</b>            1. Visualization of non-financial data in terms of company expenses            2. Loading and clearing data            3. Building a data model, connections between tables</p>
9	<p><b>Basic work with MS Power BI. Non-financial data analysis</b>            1. Adding visual elements, drill through.            2. Tables            3. Scatter, bubble, and dot plot chart</p>
10	<p><b>Basic work with MS Power BI. Basic Financial Analysis Dashboard</b>            1. Visualization of financial data with additional formatting            2. Loading and clearing data            3. Building a data model, connections between tables            4. Adding visual elements            5. Ribbon chart.            6. Treemaps. Slicers</p>

### 3.3. Tasks for independent work

Independent work of students involves the assimilation of theoretical material, consolidation of knowledge and skills acquired during classroom work in the following forms:

- independent completion of two online courses (10 points are assessed for each certificate);
- preparation for solving problems in a practical lesson (assessed as part of classroom work).

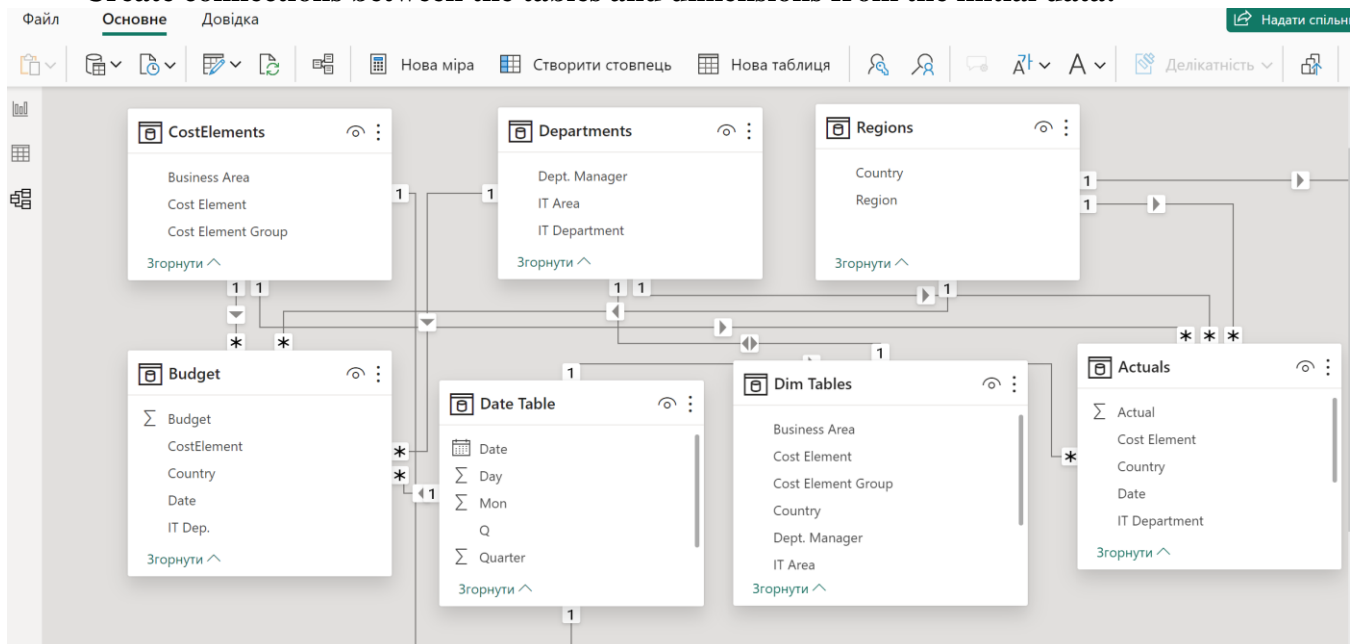
Knowledge control includes final control. Students earn points for the exam exclusively by working in practical classes in the classroom according to the subject of the course and completing the tasks of online courses.

### An example of problems to be solved in practical classes for topic «Basic work with MS Power BI. Financial data analysis»

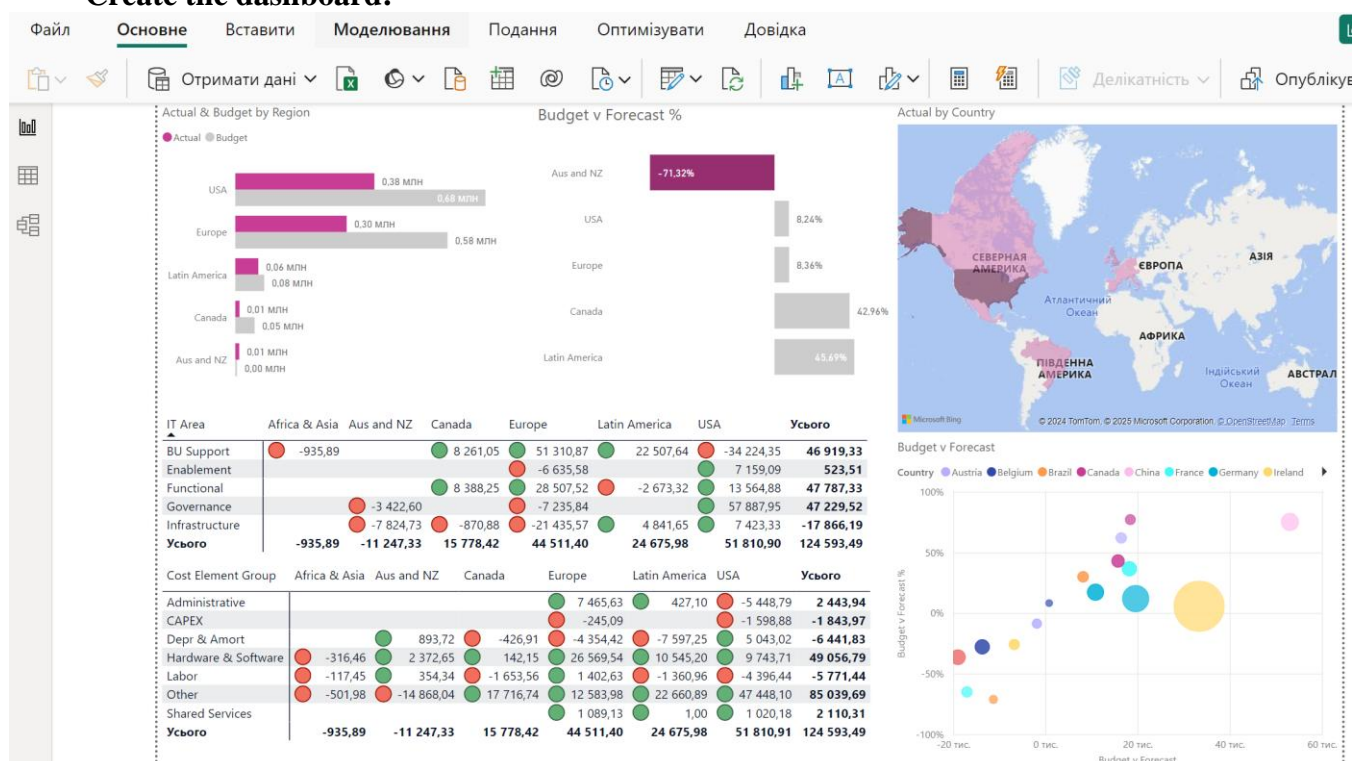
#### Problem 1. Input initial data

Date	IT Department	Cost Element	Country	Actual	Source.Name
1 січня 2020 р.	Administration	Internal Labor	USA	90994	202001.csv
1 січня 2020 р.	Architecture	Internal Labor	USA	41537	202001.csv
1 січня 2020 р.	Business Intelligence	Internal Labor	USA	64388	202001.csv
1 січня 2020 р.	Core	Internal Labor	USA	20476	202001.csv
1 січня 2020 р.	Core Infrastructure	Internal Labor	USA	55695	202001.csv
1 січня 2020 р.	Data Centers	Internal Labor	USA	138204	202001.csv
1 січня 2020 р.	Development	Internal Labor	USA	149259	202001.csv
1 січня 2020 р.	Distribution	Internal Labor	USA	75649	202001.csv
1 січня 2020 р.	Document Management	Internal Labor	USA	198600	202001.csv
1 січня 2020 р.	EIM	Internal Labor	USA	112378	202001.csv
1 січня 2020 р.	Emerging	Internal Labor	USA	9370	202001.csv

#### Create connections between the tables and dimensions from the initial data:



## Create the dashboard:



## Methodical support

Learning tools:

- Electronic educational resources (electronic materials of the complex of educational and methodical support from the course, placed in the base of the educational and monitoring program "Moodle" on the website of the Petro Mohyla Black Sea National University)
- Technical teaching aids (laptop, etc.)

Material and technical and/or information support

- Projection multimedia equipment (projector, screen, laptop/computer);
- Internet access, Wi-Fi access point;
- OS: Windows;
- Software: MS Word, MS Excel, Power BI Desktop, Skype, Zoom, GoogleMeet;
- Moodle 3.9 e-learning system

## INDEPENDENT WORK CARD

from the **Accounting and Analysis in Digital Economy** training course

Number of hours of independent student work according to the curriculum: 80 hours

Types of the independent student work	Labor intensity (hours)*	Scheduled deadlines	Forms of control	Maximum number of points
1. Completing tasks for practical activity	40	During the semester	Checking completed tasks in the classroom	* (within the evaluation of classroom activity)
2. Completion of online courses on Prometheus platforms	40	During the semester	Uploading the certificate to the Moodle system	20
<b>Total points for independent work of students</b>				20



### **2.3. Provision of educational process**

Among technical means, the use of computers and a stationary monitor during practical classes is provided. The discipline is taught using distance learning based on the Moodle electronic information system.

### **3. Final control**

Final control is carried out in the form of an exam. List of exam questions:

- 1) Digitalization of accounting in digital economy and society
- 2) The concept of digitalization of economic processes, digital society, digital economy.
- 3) The main advantages of digitalization, the main stages of the process.
- 4) Digitalization of economic processes in Ukraine.
- 5) Key areas of use of digital technologies.
- 6) Characteristic features of accounting and analysis in the digital society and economy.
- 7) Advantages of digitalization of accounting.
- 8) General characteristics of the development and use of information technologies (IT) and information systems (IS) in accounting.
- 9) The concept of information technologies and information systems and their role in accounting.
- 10) Information security and protection of accounting information.
- 11) Stages of IS development and their impact on accounting automation.
- 12) Corporate information portal as a tool for integrating business applications.
- 13) Integrated accounting information environment.
- 14) Characteristics of the main trends: robotization of production processes, cloud technologies;
- 15) Internet of Things, Big data, artificial intelligence, distributed ledger technology and blockchain.
- 16) Basic methods of artificial intelligence.
- 17) Machine and deep learning.
- 18) Characteristics of Big Data technology and related concepts.
- 19) Main trends in accounting related to the development of Big Data technology.
- 20) Functional features of blockchain.
- 21) The impact of distributed data technology and blockchain on accounting practice.
- 22) Electronic document, electronic signature, original electronic document, legal status of an electronic document and its copy.
- 23) Organization of electronic document flow.
- 24) Storage of electronic documents and archives of electronic documents
- 25) Procedure and criteria for selecting optimal computer programs and systems for the purposes of digitalization of accounting and analysis at the enterprise.
- 26) The main advantages of digitalization of accounting.
- 27) Requirements for accounting software.
- 28) Stationary and cloud accounting programs.
- 29) Characteristics of online services, advantages of their use.
- 30) Software platform. Software configurations.
- 31) Functional capabilities of software products.
- 32) Comparison of capabilities of various software products for accounting and analysis.
- 33) The essence of Internet trade.
- 34) Regulatory and legal regulation of Internet trade.
- 35) Features of accounting and taxation of Internet trade.
- 36) Accounting for costs of creating and operating an online store.
- 37) Features of calculating depreciation on a WEB site.
- 38) Classification of transactions in trade through an online store for accounting purposes.
- 39) The feasibility of creating, conducting and developing electronic business.
- 40) Key areas of conducting electronic business.
- 41) Advantages of conducting electronic business using network technologies.

- 42) Risks associated with conducting electronic business.
- 43) Stages of electronicization of the monetary sphere.
- 44) Regulatory and legal support for operations using electronic payment instruments.
- 45) Definition and essence of the term "electronic money".
- 46) Comparative characteristics of modern forms of money.
- 47) Classification of electronic money.
- 48) Features of settlements using electronic money.
- 49) Accounting for electronic money.
- 50) Advantages of using electronic money in the modern world.
- 51) What is data visualization, and why is it important in data analysis?
- 52) Can you explain the difference between a bar chart and a histogram?
- 53) Describe the process of creating a dashboard. What key elements do you consider?
- 54) What are some common pitfalls in data visualization?
- 55) How do you choose the right type of chart for your data?
- 56) Explain the concept of "chart junk" and its impact on data visualization.
- 57) How do you handle missing data when creating visualizations?
- 58) What is the purpose of color in data visualization, and how do you choose a color palette?
- 59) Explain the difference between qualitative and quantitative data visualization.
- 60) What is the role of interactivity in data visualization?
- 61) Describe a time when you had to present complex data. How did you make it understandable?
- 62) What are some best practices for labeling axes and titles in visualizations?
- 63) How do you ensure that your visualizations are accessible to all users?
- 64) What is the significance of data storytelling in visualization?
- 65) Explain the concept of "data ink ratio" and its relevance.
- 66) How do you evaluate the effectiveness of a data visualization?
- 67) What are some advanced techniques for visualizing high-dimensional data?
- 68) Discuss the importance of user feedback in the data visualization process.

### **Example of an exam task**

#### **BLACK SEA NATIONAL UNIVERSITY NAMED AFTER PETRO MOHYLA**

Department of Accounting and Auditing

Level of higher education Third (PhD)

Specialties: 071 "Accounting and Taxation",

Spring Semester      Academic discipline Accounting and Analysis in Digital Economy

#### EXAM TASK No. 0

##### **1. Answer the theoretical question (10 points)**

"Information security and protection of accounting information".

##### **2. Answer the theoretical question (10 points)**

"How do you handle missing data when creating visualizations".

##### **3. Practical task (20 points)**

Using the initial data, create a visual dashboard in Power BI. Download the result in pbix format.

The input data represents analytics on the post-COVID lending program in one city in the US (including addresses, industry, loan amount, number of employees, urban/rural and low-income).

Approved at the meeting of the Department of Accounting and Auditing

Head of the Department of Accounting and Auditing \_\_\_\_\_ Yuriy VELIKIY

Examiner, Assoc. Prof. of the Department of Accounting and Auditing \_\_\_\_\_ Natalia RUDENKO

### 3. Assessment criteria and means of diagnosing learning outcomes

No	Type of activity (task)	Maximum number of points
1	Activity on practice during the course (5 classes * 4 points)	20
2	Online courses (Prometheus platform) (2*10 points)	20
3	Practice tasks in MS Power BI (3 tasks * 7 points)	20
	<b>Subtotal</b>	<b>60</b>
	Exam	40
	<b>Total</b>	<b>100</b>

The maximum possible number of points for classroom work is received by the student for timely, complete and correct solution of practical tasks.

Completion of online courses is confirmed by an appropriate certificate and is assessed at a maximum of 10 points per course.

Criteria for evaluating examination work: correctness and completeness of the solution of tasks. The overall assessment of the work is a maximum of 40 points (20 points for a practical task in Power BI and 10 points for each of the theoretical questions).

Teaching methods used in the process of teaching the discipline: explanatory-illustrative, reproductive method, problem-based presentation method, partial-search method. Forms of control: current, final (exam).

Learning objectives	Teaching methods	Assessment forms
LO1	explanatory-illustrative, reproductive method	perform practical tasks in the classroom
LO2	explanatory-illustrative, problem-based presentation method, partial-search method	perform practical tasks in the classroom, independently complete online courses
LO5	explanatory-illustrative, reproductive method, partial-search method	perform practical tasks in the classroom, independently complete online courses
LO7	explanatory-illustrative, reproductive method, partial-search method	perform practical tasks in the classroom, independently complete online courses
LO8	explanatory-illustrative, reproductive method	perform practical tasks in the classroom, independently complete online courses
LO9	explanatory-illustrative, reproductive method, problem-based presentation method, partial-search method	perform practical tasks in the classroom, independently complete online courses

#### Control methods

A positive assessment of the current performance (total result for the semester) provided that there are no missed or unworked seminar classes is the basis for admission to the final form of control.

The discipline provides for such a form of control as an exam. During the semester, a student can score 60 points. On the exam - a maximum of 40 points. To be admitted to the exam, a student must score at least 20 points based on the results of the current control. The final control is carried out in written form (theoretical questions and a practical task) in a specialized computer classroom.

#### Current control

Current control to obtain 60 points consists of:

- completion of classroom practical tasks - max - 40 points for 8 tasks;
- completion of online courses (certificates) – max 20 points.

During practical classes, the following control methods are used: control of attendance and performance of practical work in the classroom. The maximum number of points that a student can receive for a practical lesson is from 4 to 7 points, depending on the topic of the task. Accordingly:

### Criteria for assessing students' knowledge during practical classes

Evaluation	Criteria
max	-the student works on practical tasks throughout the lesson; -shows creative abilities in understanding and using educational and program material; -expresses and argues his own attitude to alternative views on the issue; -makes relevant reports based on additionally studied material on the relevant topic.
max/2	-the student works on practical tasks during part of the lesson; -the student does not have time to complete the task in full during the lesson or performs it with significant errors.
0	-the student does not participate in the lesson; -works incompletely and poorly on practical tasks; -does not demonstrate thorough knowledge of the materials of the main literature for the course.

The final score is formed based on the total number of points scored.

#### Control over the performance of tasks for independent work

The assessment of independent work is carried out on the basis of materials submitted to the teacher in a timely manner in the Moodle system.

The completion of online courses is confirmed by a corresponding certificate, the list of courses is provided on the course page in the Moodle system, and the student can also independently choose a course on the subject of the discipline. The maximum score for the certificate is 10 points, no more than 20 points can be included in the semester scores.

The work in a practical lesson is assessed at the rate of 4-7 points for each task with the full completion of the amount of work planned for one class.

#### Criteria for evaluating examination work:

Correctness and completeness of the presentation of theoretical questions, correctness and completeness of the solution of the practical task. The overall assessment of the work is a maximum of 40 points, of which 2\*10 are theoretical questions, 20 are practical tasks.

#### Overall final grade for the discipline

The overall final grade for the discipline consists of the sum of the points based on the results of the current control (provided that the student scored at least 20 points) and for completing the tasks set in the exam tickets (provided that the student scored 20 points).

The conversion of data on the 100-point assessment scale during the assessment is carried out according to the national and ECTS scales:

#### Grading scale: national and ECTS

Total points for all types of educational activities	ECTS score	National scale score	
		for exam, course project (work), practice for credit	for test
90 – 100	<b>A</b>	excellent	passed
82-89	<b>B</b>	good	
75-81	<b>C</b>		
67-74	<b>D</b>	satisfactory	
60-66	<b>E</b>		
35-59	<b>FX</b>	unsatisfactory with the possibility of retaking	failed with the possibility of retaking
0-34	<b>F</b>	unsatisfactory with mandatory re-study of the discipline	failed with mandatory re-study of the discipline

## 9. Recommended sources of information

### Basic reference:

1. Oleshko T., Kasyanova N., Smerichevsky S. et al (2022). Digital economy: textbook. Kyiv: Nau., 200 p.
2. Barikova A. (2016) Electronic state: new efficiency of management: monograph. Kyiv: Yurinkom Inter publ., 224 p.
3. Palekh Yu. (2015). Information business: textbook. Kiev: lira Publishing House-K. 492 p.
4. Buryachok V. (2015). Information and cyberspace: problems of security, methods and means of struggle. Kiev: LLC "Sok Group Ukraine", 449 p.
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6. Aleksanyan, A. (2018). Information Economy: influence on human development opportunities. Socio-Labor Relations: Theory and practice: sat. Nauk.PR. Kiev: KNEU publ., No. 1., pp. 397-403.
7. Gerasimenko S. (2020). The Role of statistical information in informatized society. Statistics of Ukraine. No. 2-3. pp. 4-11.
8. Davydov D., Ryabovol D., Kramarenko A. Kvitka A. (2020). The role of cloud technologies in the digital economy. Business-Inform. № 8. pp. 171-177.
9. Jay Gendron. Introduction to R for Business Intelligence. BIRMINGHAM – MUMBAI, 2016., 223 p.
10. Steve Wexler, Jeffrey Shaffer, Andy Cotgreave. The Big Book of Dashboards. Visualizing Your Data Using Real-World Business Scenarios, 2017, 451 c.
11. Drew Bentley. Business Intelligence and Analytics, 2017, Library Press, 317p.
12. C.Carlberg. Business analysis. Microsoft Excel 2010.

### Electronic resources:

1. Prometheus platform <https://apps.prometheus.org.ua>
2. MS Power BI Visual Tutorials <https://www.youtube.com/playlist?list=PLUaB-1hjkh8HqnmK0gQhfmIdCbxwoAoyo>
3. R Visual Tutorials <https://www.youtube.com/watch?v=KlsYCECWEWE&list=PLEiEAq2VkUUKAw0aAJ1W4jpZ1q9LpX4yG>

### Additional reference:

1. Bukht R., Heeks R. Defining, Conceptualising and Measuring the Digital Economy. Development Informatics Working Paper. 2017, No. 68. URL: <https://siwn.com/abstract=3431732>
2. Challenges for Competition Policy in a Digitised Economy. URL: [https://www.europarl.europa.eu/RegData/etudes/STUD/2015/542235/IPOL\\_STU\(2015\)542235\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2015/542235/IPOL_STU(2015)542235_EN.pdf)
3. Fayyaz S. A review on measuring digital trade & e-commerce as new economic statistics products. The 16th Conference of IAOS, 2018 URL: [https://www.oecd.org/iaos2018/programme/IAOS-OECD2018\\_Fayyaz.pdf](https://www.oecd.org/iaos2018/programme/IAOS-OECD2018_Fayyaz.pdf)
4. Is n't Working. The Economist. Technology 2014 URL: <https://www.economist.com/special-report/2014/10/02/technology-isntworking>
5. Deloitte. What is Digital Economy? 2019 URL: <https://www2.deloitte.com/mt/en/pages/technology/articles/mt-what-is-digitaleconomy>