

**DIGITAL ACCOUNTING**  
COURSE SYLLABUS

<b>Code and name of subject area</b>	071 – Accounting and Taxation	<b>Institute</b>	Institute of Education and Science in Economics, Management and International Business
<b>Program name</b>	Accounting, Audit and Taxation	<b>Department</b>	Business Intelligence, Accounting, and Hotel and Restaurant Business
<b>Type of program</b>	Educational and Professional	<b>Language of instruction</b>	English

**Instructor In-Charge**

Tetiana Chaika, [tetiana.chaika@kphi.edu.ua](mailto:tetiana.chaika@kphi.edu.ua)



PhD in Economics, Associate Professor of Business Intelligence, Accounting and Hotel and Restaurant Business, NTU KhPI. Tetiana Chaika has authored or co-authored more than 60 scientific publications. She has more than 22 years of academic experience. She teaches courses in Optimization methods and models, Digitalization in accounting, Introductory course and introductory practice, Economic statistics, Economic analysis, Statistical methods in scientific research, Decision-making models and methods in analysis.

**General description of the course**

<b>Summary</b>	This course focuses on the impact of digital technologies on accounting. The goal of the course is to develop competencies related to the ability to adapt to the altering nature of accounting activities under the influence of information technology. Particular attention is paid to the competencies related to the skills of using information and communication technologies, the ability to identify new opportunities and development trends, improve techniques and implement modern tools of accounting, analysis, control, audit and taxation. The course also emphasizes the development of competencies related to the ability to communicate in a foreign language and to work successfully in an international multicultural environment.
<b>Course objectives</b>	By the end of the course, students will be able to: <ul style="list-style-type: none"> <li>– recognize and analyse the major trends and developments in digital accounting;</li> <li>– accumulate, compile and provide up-to-date data on the application of new information technologies in accounting;</li> <li>– navigate the digital agenda and the application of new information technologies in accounting;</li> <li>– evaluate the suitability of the investigated technologies for accounting as well as pros and cons of implementing new digital technologies;</li> <li>– justify the choice and application of management information technology for accounting, analysis, auditing and taxation.</li> </ul>
<b>Types of classes and control</b>	Lectures, workshops, consultations. The course ends with a final achievement test.
<b>Term</b>	10

<b>Student workload (credits) / Type of course</b>	3 / Mandatory	<b>Lectures (hours)</b>	16	<b>Workshops (hours)</b>	16	<b>Self-study (hours)</b>	58
--	---------------	-------------------------	----	--------------------------	----	---------------------------	----

<b>Program competences</b>	GC 02 The ability to communicate in a foreign language.
	GC 03 The skills in the use of information and communication technology.
	GC 07 The ability to work in an international setting.
	GC 09 To appreciate and value diversity and multiculturalism.
	SC 07 The ability to set goals, improve methodologies and implement modern financial and management accounting, analysis, auditing and taxation methods in accordance with the strategic business objectives.
	SC 09 The ability to advise owners, management and other users of information on accounting, analysis, control, audit and taxation.

## Learning outcomes

Code	Content
LO 02	To know the theory, methodology and practice of generating accounting information at all stages of the accounting cycle and control procedures to meet the current and potential needs of business entities and in accordance with professional judgement.
LO 03	To communicate fluently in a foreign language orally and in writing when discussing research and innovation results.
LO 16	To carry out public business and scientific communications to solve communicative problems in the official and foreign languages.

## Topical Outline of the Course Content

**Topic 1.** Defining, meaning and stages of digital transformation.

**Topic 2.** Overview of existing and emerging digital technologies in the business context.

**Topic 3.** AIS (Accounting Information System): definition, function and types.

**Topic 4.** AIS in an ERP (Enterprise Resource Planning) environment. Impact of ERP technology on accounting practices.

**Topic 5.** Cloud computing in accounting. The benefits and drawbacks of transitioning from on-premise accounting to cloud accounting.

**Topic 6.** Applications of Big Data Analytics in Accounting and Business Analytics. Emerging approaches for Data Analytics.

**Topic 7.** Adopting and application of AI (Artificial Intelligence) in accounting and business analytics.

**Topic 8.** Blockchain and other DLTs (Distributed Ledger Technologies) in accounting.

**Topic 9.** The impact of Robotic Process Automation (RPA) on the transformation of accounting functions.

**Topic 10.** Internet of Things (IoT) and its impact on accounting practice.

**Topic 11.** Business process transformation. The new role and new skills for accountants in the digital age.

## Teaching methods

The leading **form of teaching** in this course is interactive learning.

**Interactive learning** is a special form of organization of cognitive activity, a method of cognition implemented in the form of joint activities of students, in which all participants interact with each other, exchange information, jointly solve problems, simulate situations, evaluate the actions of others and their own behavior, immerse themselves in real atmosphere of business cooperation to solve the problem.

The leading **teaching methods** in this course are lectures, with an emphasis on problem lectures; case method; discussion methods, and visualization.

**Lecture** is an organized verbal presentation of subject matter often augmented by visual aids. Lectures are the best teaching method in many circumstances; especially for communicating conceptual knowledge, and where there is a significant knowledge gap between lecturer and audience. Lectures are so effective because they exploit the spontaneous human aptitude for learning from spoken (rather than written) information. Used in conjunction with active learning teaching strategies, the traditional lecture can be an effective way to achieve instructional goals. The advantages of the lecture approach are that it provides a way to communicate a large amount of information to many listeners, and maximizes instructor control. The most significant disadvantage of traditional lectures is that such lectures minimize feedback from students. In this regard, when teaching this course, where possible, preference is given to problematic lectures.

**Problem lecture** begins with the statement of the problem, which must be solved in the course of the presentation of the material. There is no ready solution in this case. That is, the student's activity is coming to the search and research ones. On such lectures, a dialogue between the teacher and students is required. Students actively participate in the discussion and search for certain solutions.

**Case method.** Providing an opportunity for students to apply what they learn in the classroom to real-life experiences has proven to be an effective way of both disseminating and integrating knowledge. The case method is an instructional strategy that engages students in active discussion about issues and problems inherent in practical application. It can highlight fundamental dilemmas or critical issues and provide a format for role playing ambiguous or controversial scenarios. The case study approach works well in cooperative learning or role playing environments to stimulate critical thinking and awareness of multiple perspectives.

**Discussion methods** are a variety of forms for open-ended, collaborative exchange of ideas among a teacher and students or among students for the purpose of furthering students thinking, learning, problem solving and understanding. Participants present multiple points of view, respond to the ideas of others, and reflect on their own ideas in an effort to build their knowledge, understanding, or interpretation of the matter at hand. A defining feature of discussion is that students have considerable agency in the construction of knowledge, understanding, or interpretation.

**Visualization** teaches the student to convert oral and written information into a visual form, highlighting the most significant and essential elements. The visualization method uses diagrams, figures, drawings, etc., including those performed by students. At the same time, the logic and rhythm of the teaching material is important. Visual presentation of the material helps to develop a clearer understanding of most topics of the course.

**WebQuest** is a constructivist approach to learning; an inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the Internet. Students not only collate and organize information they've found on the web, they orient their activities towards a specific goal they've been given. Essentially, webquests are mini-projects in which a large percentage of the input and material is supplied by the Internet.

## Assessment types and methods.

The course involves a formative and summative assessment.

**Formative assessment** (during course to test progress and mastery of concepts) provides information to students as well as instructors about how well students understand specific course concepts. The goal of formative assessment is to monitor student learning to provide feedback. This type of classroom assessment focuses upon the daily opportunities and interactions afforded to teachers and students for collecting information about student work and understandings, then uses that information to improve both teaching and learning.

Formative assessments include: in-class discussions; spot check questions; homework task discussions; quizzes etc.

**Summative assessment** (to confirm whether students have mastered the material covered in the course, as outlined in the learning outcomes) is aimed at assessing the extent to which the most important outcomes at the end of the instruction have been reached.

Summative assessment include: mid-term problem sets; individual report paper; activity in the classroom (in-class participation); final achievement test.

## Explanation of Criteria and Grading System. The grading scheme.

All judgments relating to students' grades must be fair, objective and reasonable. Making objective decisions is fundamental to fulfilling the principle aims of assessment: fairness, reliability and validity. Objectivity in the context of assessment is necessary to get an accurate judgement of what a student knows, understands and can do. It's important that grades accurately reflect the quality of student work and that student work is graded fairly.

Criterion-referenced assessment is used for the summative assessment of the course. It measures student's performances against a fixed set of predetermined criteria or learning standards.

The Grading Criteria are intended to promote fair and uniform standards for determining final grades. Establishing fair and transparent grading criteria ensures the efficiency and consistency of the grading process.

Students must fulfill all required assignments and control activities to successfully pass the course. Table 1 presents the grading scheme (the final grade components).

Table 1 – Final grade components

Mid-term problem sets		Individual report paper	In-class participation	Final achievement test	Maximum amount
№1	№2				
0-15	0-15	0-25	0-10	0-35	100

The amount of workload while completing the course is measured in terms of credits. Upon successful completion of the course, the student is awarded 3 academic credits.

Apart from the quantitative measure of the Credit, there is the Grade which represents a qualitative measure of a student's accomplishment.

The grading system of the course have developed utilizing the Ukrainian national grading system and the European credit transfer system (ECTS), and corresponds to the grading system of NTU "KhPI". The use of the ECTS grading system provides universal-applicability and transferability of grading. The ECTS grading scale provides information on the student's performance in addition to that provided by the institution's grade; it does not replace the local grade.

Table 2 presents grading scale of NTU "KhPI", as well as the criteria for awarding grades in the course.

Table 2 – Grading scale of NTU "KhPI" and the criteria for awarding grades in the course

Points	ECTS grade	Ukrainian evaluation	Criteria for awarding grades in the course	
			Positive	Negative
1	2	3	4	5
90-100	A	Excellent	Excellent, outstanding performance. A student has perfectly mastered the theoretical material, demonstrates profound and comprehensive knowledge of a relevant topic or discipline, and a high proficiency in analytical, critical and creative thinking; freely uses theoretical knowledge and possesses a high level of practical skills; exhibits a high level of independent and self-regulatory learning skills.	With only minor inaccuracies in answering questions.
82-89	B	Good	Very good, above average standards. A student demonstrates strong performance, considerable mastery of the essential facts, concepts, principles, and theories; significant proficiency in analytical, critical and creative, and problem solving skills; possesses the ability to correctly apply this knowledge to the problems assigned during the learning; exhibits an above average level of independent and self-regulatory learning skills.	With minor errors in answering questions.
75-81	C	Good	Good, generally acceptable performance. A student has intermediate mastered the essential facts, concepts,	Cannot demonstrate the ability to apply theoretical course outcomes in solving challenging practical

			principles, and theories; has practical skills and expresses opinion on this or that issue; exhibits an ample level of independent and self-regulatory learning skills.	problems.
64-74	D	Satisfactory / Pass	Satisfactory. A student demonstrates elementary mastery of the concepts and principles of the course; a certain proficiency in analytical, critical and creative, and problem solving skills.	Demonstrates significant shortcomings and lack of reasoned justification in answering questions; cannot demonstrate the ability to interpret and integrate learning outcomes; cannot demonstrate the ability to solve complex practical problems.
60-63	E	Satisfactory / Pass	Sufficient, performance meets minimum criteria. A student demonstrates minimal mastery of the concepts and principles of the course, and minimal proficiency in analytical, critical and creative, and problem solving skills. A pass grade is assigned to the student who knows the significant parts of the course on a satisfactory level and is able to demonstrate an acceptable level of familiarity in the application of the content of the course.	Cannot demonstrate competence in some non-fundamental course outcomes; cannot demonstrate the ability to provide full and consistent evidence and justification for the opinion; cannot demonstrate the ability to apply theoretical course outcomes in solving practical problems.
35-59	FX (additional study needed)	Unsatisfactory	Unsatisfactory, failed with possibility to retake the course within the timeframe provided by the syllabus. A fail grade is assigned to the student who does not command sufficient knowledge and demonstrate skill in applying the practices of his/her chosen field. Knowledge of the course is below the minimum level. Additional study needed.	Cannot demonstrate competence in the main fundamental course outcomes; demonstrates significant deficiencies in answering questions; cannot demonstrate the ability to solve practical problems.
	F		Unsatisfactory, course	Cannot demonstrate

1-34	(re-study needed)	Unsatisfactory	repetition is required. A student has not mastered the educational material of the topic, does not know the basic definitions, concepts; gives the wrong answer to the questions. Considerable further work is required. Re-study needed.	competence in many fundamental course outcomes; demonstrates significant deficiencies in answering questions; cannot demonstrate the ability to complete work assignments that meet minimum requirements.
------	-------------------	----------------	--	---

## Learning resources

### Essential readings:

1 Alam S., Hossain D. (2021). Management Accounting in the Era of Digitalization. *The Journal of Industrial Distribution & Business*. 12(11), 1-8. Doi: <http://dx.doi.org/10.13106/jidb.2021.vol12.no11.1>

2 Alzoubi A. (2011). The Effectiveness of the Accounting Information System Under the Enterprise Resources Planning (ERP). *Research Journal of Finance and Accounting*, 2(11), 10-19.

3 Andersen N. (2016). Blockchain Technology. A game-changer in accounting? Berlin, Germany: Deloitte & Touche GmbH Wirtschaftsprüfungsgesellschaft.

4 Association of Chartered Certified Accountants. (2020). *The digital accountant: digital skills in a transformed world*. London, United Kingdom: ACCA. Available at: [https://www.accaglobal.com/content/dam/ACCA\\_Global/professional-insights/digital\\_accountant/pi-digital-accountant.pdf](https://www.accaglobal.com/content/dam/ACCA_Global/professional-insights/digital_accountant/pi-digital-accountant.pdf)

5 Berikol B., Killi M. (2021). The Effects of Digital Transformation Process on Accounting Profession and Accounting Education. *Ethics and Sustainability in Accounting and Finance*, V. II (pp.219-231). Singapore: Springer Nature Singapore Pte Ltd. Doi: <https://doi.org/10.1007/978-981-15-1928-4>

6 Bhimani A. (2021). *Accounting Disrupted: How Digitalization is Changing Finance*. Hoboken, New Jersey, USA: Wiley.

7 Chaika T., Strigul L., Aleksandrova V. (2018). Application of Text-Mining statistical analysis in refining and standardising the definition of hospitality logistics. *Economic analysis*, 28(3), 123-133. (in Ukrainian).

8 Cockcroft S., Russell M. (2018). Big Data Opportunities for Accounting and Finance Practice and Research: Big Data in Accounting and Finance. *Australian Accounting Review*, 28(2). Doi: 10.1111/auar.12218

9 Dimitriu O., Matei M. (2014). A New Paradigm for Accounting through Cloud Computing. *Procedia Economics and Finance*, 15, 840-846. Doi: [https://doi.org/10.1016/S2212-5671\(14\)00541-3](https://doi.org/10.1016/S2212-5671(14)00541-3)

10 Faccia A., Petratos P. (2021). Blockchain, Enterprise Resource Planning (ERP) and Accounting Information Systems (AIS): Research on e-Procurement and System Integration. *Applied Sciences*, 11 (6792). Doi: <https://doi.org/10.3390/app11156792>

11 Gietzmann M., Grossetti F. (2021). Blockchain and other distributed ledger technologies: Where is the accounting? *Journal of Accounting and Public Policy*, 40(5). Doi: <https://doi.org/10.1016/j.jaccpubpol.2021.106881>

12 Hacıoglu U. (Ed.) (2020). *Digital Business Strategies in Blockchain Ecosystems Transformational Design and Future of Global Business*. Bern, Switzerland: Springer Nature AG.

13 Holtkemper O. (2020). *Digitization of the Management Accounting Function. A Case Study Analysis on Manufacturing Companies*. Wiesbaden, Germany: Springer Fachmedien Wiesbaden GmbH, part of Springer Nature. Doi: <https://doi.org/10.1007/978-3-658-31509-2>

14 Institute of Chartered Accountants in England and Wales. (2019). *Big data and analytics: the impact on the accountancy profession*. London, UK: ICAEW. Available at: <https://www.icaew.com/-/media/corporate/files/technical/technology/thought-leadership/big-data-and-analytics.ashx>

15 Institute of Chartered Accountants in England and Wales. (2019). *The internet of things and accounting: lessons from China*. London, UK: ICAEW. Available at: <https://www.icaew.com/-/media/corporate/files/technical/business-and-financial-management/internet-of-things-and-accounting.ashx?la=en>

16 Kreger M., Gundel U. (2017). *Digitalization in accounting*. Berlin, Germany: KPMG AG.

17 Langmann C., Kokina J. (2021). RPA in accounting. *Robotic Process Automation*, (p. 243-262). Berlin/Munich/Boston: Walter de Gruyter GmbH. DOI: 10.1515 / 9783110676693-013

18 Li Y., Yi J., Chen H., Peng D. (2021). Theory and application of artificial intelligence in financial industry. *Data Science in Finance and Economics*, 1(2), 96-116. doi: 10.3934/DSFE.2021006

19 Moffit K., Rozario A., Vasarhelyi M. (2018). Robotic Process Automation for Auditing. *Journal of Emerging Technologies in Accounting*, 15 (1).

20 Ng C., Alarcon J. (2021). *Artificial Intelligence in Accounting. Practical Applications*. Abingdon, Oxfordshire, UK: Routledge.

21 Ramona L., Tudor A., Bresfelean V. (2020). Robotic Process Automation in Audit and Accounting. *Audit Financiar*, 4(16), 752-770. Doi:10.20869/AUDITF/2020/160/024

### **Optional readings:**

1 Abdul-Rahman A. (2014). Accounting Information System Lessons from Implementing Enterprise Resource Planning in a Saudi Case Study. *Trends in Applied Sciences Research*, 9, 326-344. Doi: 10.3923/tasr.2014.326.344

2 Almagtome A. (2021). Artificial Intelligence Applications in Accounting and Financial Reporting Systems: An International Perspective. *Handbook of Research on Applied AI for International Business and Marketing Applications*. (p.19). Pennsylvania, USA : IGI Global.

3 Busulwa R., Evans N. (2021). *Digital Transformation in Accounting*. Abingdon, Oxfordshire, UK: Routledge.

4 Chaika T. (2018). Calculation of return on assets according to the financial statements of Ukrainian NP(S)BU and current trends in its evaluation



and analysis. Efficient economy, 5. Available at: [http://www.economy.nayka.com.ua/pdf/5\\_2018/33.pdf](http://www.economy.nayka.com.ua/pdf/5_2018/33.pdf) (in Ukrainian).

5 Chaika T. (2019). Optimization of the structural and dynamic characteristics of the balance sheet based on its horizontal analysis. *Problems of systemic approach in the economy*. 6(74), 124-133. (in Ukrainian).

6 Chaika T., Poberezhna N., Aleksandrova V. (2018). Calculation of financial logistics indicators according to the financial statements of the Ukrainian hospitality industry. *Market infrastructure*. 24, 451-459. (in Ukrainian).

7 Chaika T. (2019). The indicators of return on assets: current trends in calculation and analysis (the case of hotel companies). *Problems of systemic approach in the economy*. 2(70), 113-120. (in Ukrainian).

8 Chaika T. (2019). The profitability of sales ratios in the hospitality industry: calculation based on financial statements and current trends of analysis. *Scientific Bulletin of Kherson State University. Series: Economic Sciences*. 33, 236-242. (in Ukrainian).

9 Daoud H., Triki M. (2013). Accounting Information Systems in an ERP Environment and Tunisian Firm Performance. *The International Journal of Digital Accounting Research*, 13, 1-35. Doi: 10.4192/1577-8517-v13\_1

10 El-Dalahmeh S. (2021). Impact of Big Data Analysis on Accounting Profession Field- Study in Jordanian Business Environment. *International Journal of Accounting and Financial Reporting*, 11 (1). Doi:10.5296/ijafr.v11i1.18403

11 Kharbat F., Muqattash R. (2020). Accounting Information System Courses: Developing a Hybrid Syllabus in the Era of Digitization. *The International Journal of Digital Accounting Research*, 20, 135-167.

12 Lee D., Chuen K., Deng R. (2018). *Handbook of Blockchain, Digital Finance, and Inclusion*. Cambridge, Massachusetts, USA: Academic Press. Doi: <https://doi.org/10.1016/B978-0-12-810441-5.00027-0>

13 Lundy B., Sergeant A., Jiles L. (2021). Accounting curricula in the digital age. *Strategic Finance*, August 2021. Available at: <https://sfmagazine.com/post-entry/august-2021-accounting-curricula-in-the-digital-age/>

14 Manski S. (2020). Distributed Ledger Technologies, Value Accounting, and the Self Sovereign Identity. *Frontiers in Blockchain*, 3(29). Doi: 10.3389/fbloc.2020.00029

15 Nur E., Irfan M. (2020). ERP-Based Accounting Information System Implementation in Organization: A Study in Riau, Indonesia. *Journal of Asian Finance, Economics and Business*, 7(12), 147-157.

### **Web Links:**

1 Verkhovna Rada of Ukraine. Official webportal. URL : <https://www.rada.gov.ua/en>

2 Scientific and Technical Library of NTU “KhPI”. URL : <http://library.kpi.kharkov.ua/en>

3 State Statistics Service of Ukraine. URL : <http://www.ukrstat.gov.ua/>

4 Electronic NTU “KhPI” Repository. URL : <http://repository.kpi.kharkov.ua/home.jsp?locale=en>

5 National Library of Ukraine named after V. I. Vernadsky. URL : <http://www.nbuv.gov.ua/>

## Logical sequence of studying educational components

Subject matters of the Educational Programme build over multiple courses taught in a particular order, or sequence, over multiple semesters. Courses are considered to be in sequence when concepts introduced in one course serve as direct preparation for the next course and there is a progression from one course to another.

Table 3 presents the programme courses that stand in sequential relationship to this course.

Table 3 – Programme courses that stand in sequential relationship to this course

The programme courses that precede this course (prerequisites)	The programme courses to be taken after this course
–	Taxation of business entities Organizing and techniques of auditing Accounting and analytical support for diagnostics and forecasting the development of business structures Diagnosing the company's current position in crisis management Tax management Tax administration

Instructor In-Charge:  
Assoc. Prof. Tetiana Chaika

\_\_\_\_\_