The syllabus of the discipline

Electronic payment systems

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Field name	Detailed content, comments
Name of the faculty	Faculty of Infocommunications
Level of higher education	First (bachelor's)
Code and name of the specialty	172 Telecommunications and radio engineering
Type and name of educational program	EPP "Information and Network Engineering"
Name of the discipline	Electronic payment systems
Number of ECTS credits	4
Discipline structure (distribution by types andhours of study)	24 hours - 12 lectures, 4 hours - 2 practical classes, 20 hours - 5 laboratory classes, 8 hours - 4 consultations, 64 hours - homework, **type of control**: exam
Schedule (terms) of studying the discipline	4th year, VII semester
Prerequisites for studyingthe discipline	The disciplines of Technology must be studied first: – transport networks, – switching and distribution systems information, – Fundamentals of information and communication technologies, – databases.
Competences, knowledge, skills, understanding, whichis acquired by the applicantin higher education in the learning process	The discipline is used to form the following competencies: LC-3 Ability to use the basics of legal knowledge in various fields. ZK-4 Skills of information and communication technologies. LC-5 Ability to search, process and analyze information from various sources. FC-3 Ability to have the basic methods, methods and means of obtaining, storing, processing information. FC-4 Ability to have skills of independent work on the computer and in computer networks; to carry out computer modeling of devices, systems and processes with use of universal application packages computer programs. FC-5 Ability to use regulatory and legal documentation specific to areas of telecommunication networks, telecommunication and radio engineering systems (laws of Ukraine, technical regulations, international and national standards, recommendations of the International Telecommunication Union, etc.). FC-8 Willingness to promote the introduction of advanced technologies and standards. FC-9 Ability to accept and develop new equipment in accordance with current regulations. FC-14 Willingness to study scientific and technical information, domestic and foreign experience in the field of investment (or other) project; ability to collect and analyze information in order to generate initial data for the design and manufacture of telecommunications and radio engineering.

The quality of the educational process	Educational-methodical and material-technical resource provision of the educational program, within the framework of which the discipline is studied, meets the licensing requirements and accreditation conditions of the educational activity of the university. Annual monitoring and revision of the curriculum of the discipline in accordance with the requirements and recommendations of the Ministry of Education and Science, state certification of acquired competencies of graduates, standards of cooperation with employers to ensure a competitive level of training Adherence to the principles of academic integrity (https://lib.nure.ua/plagiat). Contains public information on the requirements, competencies, level of education within the current educational program

Description and content of the discipline

The purpose of studying the discipline - the formation of a system of knowledge on the theory of payment systems, payment instruments, the specifics of building the National Payment Systems of Ukraine and electronic payment systems on the Internet, bitcoins.

Content

Content module 1 Conceptual principles of functioning of electronic payment systems

Topic 1. Electronic payment systems: essence, meaning and legal basis of activity

Topic 2. International payment systems

Topic 3. Participants in payment systems and their functions

Topic 4. General concept of electronic payment systems

Topic 5. Bank payment card - a tool for settlements and lending Topic 6. Payment instruments

Content module 2. Modern electronic payment systems

Topic 1. Information technology of payment systems

Topic 2. Electronic payment system of the National Bank of Ukraine

Topic 3. National system of mass electronic payments "Space"

Topic 4. Digital money

Topic 5. Cryptocurrency

Topic 6. Bitcoins

Learning outcomes of higher education

As a result of studying the discipline, students must:

know: conceptual provisions of functioning and current standards of payment systems of Ukraine and leading countries of the world; legislative base of activity of payment systems in Ukraine, features of use of various payment instruments; information and technological structure of payment systems.

be able to: use theoretical knowledge when using, designing and operating payment systems; ensure the secure operation of payment systems and use a variety of payment instruments.

Possess (list of competencies) PRN-3 Apply: basic knowledge in the field of informatics and modern information technologies, have skills in programming and use of software and work in computer networks, ability to create databases, use Internet resources and demonstrate ability to develop algorithms and computer programs for the use of high-level languages and object-oriented programming technologies for the implementation of tasks in the field of telecommunications and radio engineering. PRN-5 Be able to use computer-aided design systems for the development of devices for telecommunications and radio systems and networks. PRN-6 Be able to use modern programming languages to implement algorithms for managing telecommunications networks. PRN-7 Be able to work with tools of collective management and distributed information storage. PRN-8 Ability to analyze the performance of software products, to have the means of their software debugging and testing, to apply modern technologies of visual design of software products.PRN-10 Ability to calculate the parameters of efficiency and quality of work of elements, objects and services provided in telecommunications. PRN-12 Ability to explain and reproduce the principles of construction and operation of hardware and software systems of management and maintenance systems and their application in information and telecommunications networks, telecommunications, radio and technological systems; PRN-13 Skills to ensure reliable and high-quality operation of information and communication networks, telecommunication and radio systems.

Assessment system according to each task for passing the test / exam

To assess the work of a student during the semester, the final rating score Q_{sem} is calculated as the sum of marks for different types of classes and control activities

Type of lesson / control measure	Rating
Lb № 1, 2	(6…10) x 2 = 12….20
Control testing 1	(12…20) = 12…20
Checkpoint 1	**24…40**
Lb № 3,4,5	(6….10) x 3 = 18….30
Practice Control testing	(12…20) = 12…20
Control testing 2	(6…10) = 6...10
Checkpoint 2	**36…60**
Total for the semester	**60…100**

Qualitative evaluation criteria in the national scale and ECTS

Criteria for evaluating student work during the semester.

Satisfactory, D, E (60-74). Have a minimum of knowledge and skills. Work out and defend all laboratory work and IDPs.

Well, C (75-89). Know the main topics of the discipline. Work out and defend all laboratory work and ID.

Excellent, A, B (90-100). Know all the topics of the discipline. Work out and defend all laboratory work and IDPs. Prepare essays on each of the content modules.

Criteria for assessing the knowledge and skills of the student in the combined exam.

Satisfactory, D, E (60-74). Show the required minimum of theoretical knowledge. Solve the problem.

Well, C (75-89). Know the main topics of theoretical material. Solve the problem.

Excellent, A, B (90-100). Show complete knowledge of theoretical material. Solve the problem correctly.

Assessment scale: national and ECTS

<table>
<tr><td rowspan="2">The sum of points for all types of educational activities</td><td rowspan="2">ECTS assessment</td><td colspan="2">Score on a national scale</td></tr>
<tr><td>for exam, course project (work), practice</td><td>for offset</td></tr>
<tr><td>90 – 100</td><td>A</td><td>perfectly</td><td rowspan="5">credited</td></tr>
<tr><td>82-89</td><td>B</td><td rowspan="2">fine</td></tr>
<tr><td>74-81</td><td>C</td></tr>
<tr><td>64-73</td><td>D</td><td rowspan="2">satisfactorily</td></tr>
<tr><td>60-63</td><td>E</td></tr>
<tr><td>35-59</td><td>FX</td><td>unsatisfactory with the possibility of reassembly</td><td>not credited with the possibility of re-assembly</td></tr>
<tr><td>0-34</td><td>F</td><td>unsatisfactory with mandatory re-examination</td><td>not credited with compulsory re-study of the discipline</td></tr>
</table>

Methodical support

Basic literature

1. Zakon Ukrainy «Pro natsionalnyi bank Ukrainy».
2. Zakon Ukrainy «Pro banky i bankivsku diialnist».
3. Zakon Ukrainy «Pro platizhni systemy ta perekaz koshtiv v Ukraini».
4. Zakon Ukrainy «Pro poshtovyi zviazok».
5. Zakon Ukrainy «Pro elektronni dovirchi posluhy»
6. Informatsiini merezhi zviazku. Ch. 4. Tekhnolohii nadannia informatsiinykh posluh: navch. posibnyk.// Bezruk V. M., Korolov V. M., Zolotarov V. A., Botsman P. D., Kostromytskyi A. I., Astrakhantsev A. A., Kapusta S. O. – Kharkiv: KhNURE, 2011. – 424 s.
7. Pyrih S.O. Platizhni systemy: Navchalnyi posibnyk. – K.: Tsentr uchbovoi literatury, 2008 – 240 s.
8. Chaikovskyi Ya. I. Platizhni systemy: Navchalnyi posibnyk. – Ternopil: Kart-blansh, 2006. – 210 s.
9. Vovchak O.D., Shparhalo H.Ie., Andreikiv T.Ia. Platizhni systemy: navchalnyi posibnyk. – K.:Znannia,2008 – 341 s.
10. Platizhni systemy: Navch. posibnyk dlia studentiv vyshch. zakladiv osvity/ V. A. Yushchenko, A. S. Savchenko, S. L. Tsokol, I. M. Novak, V. P. Strakharchuk. K.: Lybid, 1998. – 416 s.

Support literature

1. Dedenev M. A., Dylnov D. V., Yvanov M. A. Zashchyta ynformatsyy v bankovskom dele y elektronnom byznese. – M.: KUDYTs-OBRAZ, 2004. – 512 s.
2. Zapechnykov S.V. Kryptohrafycheskye protokoly y ykh prymenenye v fynansovoi y kommercheskoi deiatelnosty. – M.: Horiachaia lynyia – Telekom, 2007. – 320 s.

Methodical instructions for different types of classes

1. Komplekt slaid-lektsii z dystsypliny «Elektronni platizhni systemy» dlia studentiv usikh form navchannia spetsialnosti 172 «Telekomunikatsii ta radiotekhnika», spetsializatsii «Telekomunikatsii», «Informatsiino-merezhna inzheneriia» [Elektronnyi dokument] / Uporiad.: V.A.Zolotarov. Kharkiv: KhNURE, 2017. – 684 s.
2. Metodychni vkazivky do praktychnykh zaniat z dystsypliny “Elektronni platizhni systemy» dlia studentiv usikh form navchannia spetsializatsii «Informatsiino-merezhna inzheneriia», «Telekomunikatsii» spetsialnosti 172 «Telekomunikatsii ta radiotekhniky» [Elektronnyi dokument] / Uporiad.: V.A. Zolotarov. – Kharkiv: KhNURE, 2017. – 18 s.
3. Metodychni vkazivky do vykonannia laboratornykh robit z dystsypliny “Elektronni platizhni systemy» dlia studentiv usikh form navchannia spetsialnosti 172 «Telekomunikatsii ta radiotekhniky», spetsializatsii «Telekomunikatsii», «Informatsiino-merezhna inzheneriia» [Elektronnyi dokument] / Uporiad.: V.A. Zolotarov. – Kharkiv: KhNURE, 2017. – 48 s.
4. Metodychni vkazivky do vykonannia kontrolnykh zavdan z dystsypliny “Elektronni platizhni systemy» dlia studentiv usikh form navchannia spetsializatsii «Informatsiino-merezhna inzheneriia», «Telekomunikatsii», spetsialnosti 172 «Telekomunikatsii ta radiotekhniky» [Elektronnyi dokument] / Uporiad.: V.A. Zolotarov. – Kharkiv:

KhNURE, 2017. – 20 s.

5. Metodychni vkazivky do samostiinoi roboty z dystsypliny «Elektronni platizhni systemy» dlia studentiv vsikh form spetsialnosti 172 «Telekomunikatsii ta radiotekhnika» spetsializatsii «Telekomunikatsii», «Informatsiino-merezhna inzheneriia»[Elektronnyi dokument] / Uporiad. V.A.Zolotarov. – Kharkiv, KhNURE, 2017. – 41s.

Information support

Original software