

The syllabus of the discipline  
***CASE-technologies of information systems design***

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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	CASE-technologies of information systems design
Number of ECTS credits	4
Discipline structure (distribution by types and hours of study)	24 hours - 12 lectures, 4 hours - 2 practical classes, 20 hours - 5 laboratory classes, 8 hours - 4 consultations, 64 hours - homework, <b>type of control:</b> credit
Schedule (terms) of studying the discipline	4th year, VII semester
Prerequisites for studying the discipline	Basic knowledge of disciplines that provide knowledge of routing in communication networks, protocols, types and design of network construction.
Competences, knowledge, skills, understanding, which is acquired by the applicant in higher education in the learning process	The discipline is used to form the following competencies: in the process of practical activities in the field of infocommunications skills design of infocommunication systems and software of infocommunication systems.
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 ( <a href="https://lib.nure.ua/plagiat">https://lib.nure.ua/plagiat</a> ). 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 is to acquire knowledge and practical skills of students according to the standards IDEFO, IDEF3, DFD, which will be used by them in performing tasks of designing information systems and their software.

### **Content**

#### **Content module 1.**

Topic 1. Modern approaches to software development.

Topic 2. Software life cycle models

Topic 3. Management of software development requirements

Topic 4. Life cycle and formalized description of task flows

Topic 5. Formalized description and implementation of task flows

Topic 6. BPMN: graphic elements; use of BPMN; example of the description of BP.

#### **Content module 2.**

Topic 1. UML language. Usage diagrams

Topic 2. Class and state diagrams

Topic 3. Activity and sequence diagrams

Topic 4. Deployment and synchronization diagrams

Topic 5. Implementation and flow technologies

Topic 6. Technologies for organizing workflows in distributed systems.

### **Learning outcomes of higher education**

As a result of studying the discipline, students must:

- know: modern approaches to software development; software life cycle models; management of software development requirements; life cycle and formalized description of task flows; formalized description and implementation of task streams; BPMN: graphic elements; use of BPMN; an example of a description of the BP; UML language; usage diagrams; diagrams and states; activity and sequence diagrams; deployment and synchronization diagrams; sales and flow technologies; technologies for organizing workflows in distributed systems
- be able to: use IDEFO diagrams to describe business processes; create reports with built-in RAMUS tools; build TO-BE diagrams ("how to be"); use functional-cost analysis to assess the effectiveness of business processes; use diagrams describing the logic of the interaction of works to describe the subject area using the IDEF3 standard; create Node Tree and Swim Lane organization charts; use data flow charts to describe the subject area.

## 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  $Q_{\text{sem}}$  is calculated as the sum of marks for different types of classes and control activities

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

### Qualitative evaluation criteria in the national scale and ECTS

**Satisfactory, D, E (60-74).** Show the required minimum of theoretical knowledge. Know the ways and methods of solving practical problems and be able to use them in practice.

**Well, C (75-89).** Firmly know a minimum of theoretical knowledge. Demonstrate the ability to solve a practical problem and justify all stages of the proposed solution.

**Excellent, A, B (90-100).** Show complete knowledge of basic and additional theoretical material. Unmistakably solve a practical problem, explain and justify the chosen method of solution.

### Assessment scale: national and ECTS

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

## **Methodical support**

### Basic literature

1. 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.
2. Rozrobka informatsiinykh resursiv i system: Elektronne navchalne vydannia. Konspekt leksii/ L.S. Hloba; T.M.Kot. – K.: NN ITS NTUU «KPI», 2014 – 320 s.

### Methodical instructions for different types of classes

- 1.Laboratornyi praktykum z kursu «CASE-tekh nolohii». – Kharkiv, KhNEU, 2015.

### Information support

Original software