

**UNIVERSITY OF ECONOMICS - VARNA**  
**MASTER DEGREE CENTER**  
**DEPARTMENT OF INFORMATICS**

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Adopted by the FC (record №8 / 05.03.2020)

Adopted by the DC (record №7 / 28.02.2020)

**ACCEPTED BY:**

**Dean:**

(prof. Vladimir Sulov, PhD)

**SYLLABUS**

**SUBJECT: “DESIGN OF INFORMATION SYSTEMS”;**

**DEGREE PROGRAMME: „Computer Science“; MASTER`S DEGREE**

**YEAR OF STUDY: 6 for other field graduates; SEMESTER: 12;**

**TOTAL STUDENT WORKLOAD: 150 hours; incl. curricular 60 hours**

**CREDITS: 5**

**DISTRIBUTION OF STUDENT WORKLOAD ACCORDING TO THE CURRICULUM**

<i>TYPE OF STUDY HOURS</i>	<b>WORKLOAD, hours</b>	<b>TEACHING HOURS PER WEEK, hours</b>
<b>CURRICULAR:</b>		
incl.		
• LECTURES	30	2
• SEMINARS (lab. exercises)	30	2
<b>EXTRACURRICULAR</b>	90	-

Prepared by:

1. ....  
(assoc. prof. Silvia Parusheva, PhD)
2. ....  
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Head of department

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## I. ANNOTATION

The discipline "Design of information Systems" is fundamental for students of bachelor degree of "Computer Science" at the University of Economics – Varna. It aims to provide theoretical knowledge and practical skills in building of Information systems (IS). The preparation of the discipline forms systematic thinking and approach in the development of IS.

During the course students have the opportunity to apply the acquired knowledge and skills in the development and maintenance of information systems in different subject areas. The development of course projects on real tasks provides the necessary practical preparation for the realization of students as developers of IS.

The training in this discipline provides the necessary foundation for the development of the ability to expand knowledge about new technological solutions in the building and maintenance of IS

## II. THEMATIC CONTENT

№	TITLE OF UNIT AND SUBTOPICS	NUMBER OF HOURS		
		L	S	L.E.
<b>Theme 1. Information Systems Architecture. IS Lyfe Cycle.</b>		<b>3</b>		
1.1.	Information Systems – characteristics, development, requirements, classification.	1		
1.2.	Architecture of the information systems.	1		
1.3.	IS Life Cycle. Life Cycle models.	1		
<b>Theme 2. Design approaches and principles.</b>		<b>3</b>	<b>4</b>	
2.1.	Structured design approach.	1	2	
2.2.	Object-oriented design approach.	1	2	
2.3.	Design principles.	1		
<b>Theme 3. Object-oriented modelling.</b>		<b>2</b>		
3.1.	Object-oriented modelling principles.	1		
3.2.	Object-oriented methodologies and modelling languages.	1		
<b>Theme 4. Unified Modelling Language (UML).</b>		<b>6</b>	<b>6</b>	
4.1.	Characteristics and advantages of UML. Diagrams and models. UML software.	1	2	
4.2.	Use case diagrams.	1	1	
4.3.	Interaction overview diagrams.	1	1	
4.4.	Sequence diagrams.	1	1	
4.5.	Activity diagrams. State machine diagrams.	2	1	
<b>Theme 5. Organization of slowly changing data.</b>		<b>2</b>	<b>2</b>	
5.1.	Nomenclatures – characteristics and requirements. Classification of information sets.	1	1	
5.2.	Coding of information sets.	1	1	
<b>Theme 6. Design of the information base.</b>		<b>4</b>	<b>6</b>	
6.1.	Information base organization forms.	1	2	
6.2.	Relational database design.	3	4	
<b>Theme 7. User interface design.</b>		<b>2</b>	<b>4</b>	
7.1.	User interface – requirements, trends.	1	2	
7.2.	Methodology of user interface design.	1	2	

<b>Theme 8. Input design.</b>		<b>4</b>	<b>4</b>	
8.1.	Forms for input realization. Input requirements.	1	2	
8.2.	Software environments for input design.	3	2	
<b>Theme 9. Output design.</b>		<b>4</b>	<b>4</b>	
9.1.	Static and dynamics output forms.	1	2	
9.2.	Methodology of output design. Software tools for output design	3	2	
<b>Total:</b>		<b>30</b>	<b>30</b>	

### **III. FORMS OF CONTROL:**

<b>№</b>	<b>TYPE AND FORM OF CONTROL</b>	<b>Number</b>	<b>extracurricular, hours</b>
<b>1.</b>	<b>Midterm control</b>		
1.1.	Tests	2	30
<b>Total midterm control:</b>		<b>2</b>	<b>30</b>
<b>2.</b>	<b>Final term control</b>		
2.1.	Examination (test)	1	30
2.2.	Course project	1	30
<b>Total final term control:</b>		<b>2</b>	<b>60</b>
<b>Total for all types of control:</b>		<b>4</b>	<b>90</b>

### **IV. LITERATURE**

#### **REQUIRED (BASIC) LITERATURE:**

1. Sulova, S., Kasheva, M., Filipova, N., Peneva, P., Aleksandrova, Y., Electronic Business 1st Part. Business Modeling. Analysis and Development of Business Information Systems, Publishing house „Science and Economics”, 2015.
2. Alan, D., Haley Wixom, B., Roth, R., System Analysis and Design, 10th edition, John Wiley and sons, 2018.

#### **RECOMMENDED (ADDITIONAL) LITERATURE:**

1. Object Management Group, UML Specification, <https://www.omg.org/spec/UML/> (23.02.2020)
2. Mangogna, A., Starr, L., Mellor, S., Models to Code, Apress, 2017
3. Stephens, R., Beginning Software Engineering, John Wiley and sons, 2015