**AL-FARABI KAZAKH NATIONAL UNIVERSITY**

**FACULTY OF INFORMATION TECHNOLOGIES**

**Educational program in the specialty  
«5B070300 – Information systems»**

**SYLLABUS  
(5B070300) «Fundamentals of cloud technologies»  
Spring semester 2019-2020 academic year  
Academic course presentation**

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| **Discipline’s code** | **Name of the course** | **Type** | **Number of hours per week** | | | | **Number of credits** | | **ECTS** |
| **Lecture** | **Practice** | | **Lab** |
| **OOT3305** | **Fundamentals of automation and control** | Elective | 1 | 0 | | 1 | 2 | | 5 |
| **Lecturer** | Karyukin Vladislav Igorevich | | | | Office hours | | | Scheduled | |
| **e-mail** | [vladislav.karyukin@gmail.com](mailto:vladislav.karyukin@gmail.com)  [vladislav.karyukin@kaznu.kz](mailto:vladislav.karyukin@kaznu.kz) | | | |
| **Phone number** | +77019405992 | | | | Room | | | Business incubator | |
| **Laboratory works** | Tletai Sholpan Tletaikyzy | | | |  | | |  | |
| **e-mail** | [shopsh94@mail.ru](mailto:shopsh94@mail.ru) | | | |
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| **Academic presentation of the course** | **The purpose of the course:** is to obtain knowledge about various kinds of aspects of use of cloud technologies. Students must be able to define pros and cons of cloud services and decide in what situation it is more preferable to use on premises or cloud services.  **Learning outcomes:**   1. Differentiate between the **subscription** or **pay-as-you-go** model; 2. Know about public, private and hybrid clouds; 3. Find out differences between IaaS, PaaS, SaaS; 4. Know how to use Office 365, OneDrive, Intune and Microsoft Azure cloud services |
| **Prerequisites** | Operating systems |
| **Postrequisites** | Advanced cloud computing |
| **Literature and resources** | **Basic:**   1. Cloud fundamentals – Microsoft technology associate. Wiley & Sons, 2016 2. Enterprise cloud strategy – Barry Briggs, Eduardo Kassner. Microsoft press, 2016   **Additional:**   1. Microsoft AZ-301 Exam Preparation. Georgio Daccache, 2019; 2. Exam Ref AZ-300 Microsoft Azure Architect Technologies. Derek Schauland, Mike Pfeiffer, 2019     Additional training material, as well as documentation used to carry out homework and projects, will be available on your page on the website univer.kaznu.kz in the EMDC section (It is recommended to master the MOOC course on the subject of discipline). |
| **Academic policy of the course in the context of university values** | **Rules of academic conduct**: Mandatory attendance at classes, no lateness. Absence and being late for classes are estimated at 0 points. Mandatory observance of the deadlines for the completion and delivery of tasks (according to the CDS, mid-term controls, control, laboratory, design work, etc.), the final exam. In case of violation of the deadlines, the completed task is evaluated taking into account the deduction of penalty points. **Academic values**: Academic honesty and integrity: autonomy in completing all tasks; the inadmissibility of plagiarism, forgery, the use of cheat sheets, cheating at all stages of the control of knowledge, deceiving the teacher and disrespectful attitude to the teacher and students. Students with disabilities can receive counseling at the email address: [vladislav.karyukin@gmail.com](mailto:vladislav.karyukin@gmail.com) |
| **Assessment and Certification Policy** | **Criteria assessment**:  During the acceptance of work performed and the final exam, the assimilation of theoretical material and the acquisition of theoretical and practical skills are checked in accordance with the descriptors (verification of the formation of competencies in midterm control and exams). **Summative assessment**: assessment of active work in the audience; assessment of the completed task. The final scale is set according to the scale below. |

**Grading scale**

|  |  |  |  |
| --- | --- | --- | --- |
| **Letter grade** | **Grade Point Value** | **Percentage** | **Conventional Grade** |
| A | 4.0 | 95-100 | Excellent |
| A– | 3.67 | 90-94 |
| B+ | 3.33 | 85-89 | Good |
| B | 3.0 | 80-84 |
| B– | 2.67 | 75-79 |
| C+ | 2.33 | 70-74 |
| C | 2.0 | 65-69 | Satisfactory |
| C– | 1.67 | 60-64 |
| D+ | 1.33 | 55-59 |
| D– | 1.0 | 50-54 |
| FX | 0.5 | 25-49 | Failure |
| F | 0 | 0-24 |

**Schedule (graphic) of the educational course program**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Topic title (lectures, laboratory works, students independent work)** | **Number of hours** | **Maximum points** |
| 1 | **Lecture (L) 1.** Introduction to cloud technologies | 1 | 0 |
| **Laboratory work (LW) 1.** Simulink system of MATLAB | 2 | 10 |
| 2 | **L2.** Cloud principles and delivery mechanisms | 1 | 5 |
| **LW2.** Creating Virtual Machines in Azure | 2 | 10 |
| 3 | **L3.** Configuring Microsoft Office 365 | 1 | 5 |
| **LW3.** Creating SQL Server Database in Azure | 2 | 10 |
| 4 | **L4**. The use of Microsoft Intune for centralized configuration of devices | 1 | 5 |
| **LW4**. Build cloud storages in Azure | 2 | 10 |
| 5 | **L5**. Implementing OneDrive cloud storage for keeping data and collaboration | 1 | 5 |
| **LW5**. Create data boxes in Azure | 2 | 10 |
| **SIW 1**. Developing web application in Azure |  | 30 |
| **The Intermediate Control 1 (IC1)** |  | **100** |
| 6 | **L6**. Classification of cloud computing. Studying SaaS | 1 | 0 |
| **LW6**. Creating networking in Azure | 2 | 10 |
| 7 | **L7**. Classification of cloud computing. Studying PaaS | 1 | 5 |
| **LW7**. Configuring virtual networks in Azure | 2 | 10 |
| 8 | **L8**. Classification of cloud computing. Studying IaaS | 1 | 5 |
| **LW8**. Developing data lake analytics | 2 | 10 |
| 9 | **L9**. Building applications in Microsoft Azure | 1 | 5 |
| **LW9**. Developing Power platform | 2 | 10 |
| **SIW 2**. Developing mobile applications in Microsoft Azure |  | 30 |
| 10 | **L10**. Building web application in Microsoft Azure | 1 | 5 |
| **LW10**. Deploying Microsoft Azure SQL Data Warehouse and Azure SQL Database | 2 | 10 |
| **The Intermediate Control (MT)** |  | **100** |
| 11 | **L11**. Analyzing Microsoft Azure Subscription Resource Utilization | 1 | 0 |
| **LW11**. Creating Microsoft Azure Stack Development Environment | 2 | 10 |
| 12 | **L12**. Design a computer strategy for Microsoft Azure | 1 | 5 |
| **LW12**. Implementing Microsoft Azure backup | 2 | 10 |
| 13 | **L13**. Monitoring Microsoft Azure processes | 1 | 5 |
| **LW13**.Creating and configuring Microsoft Azure storage accounting | 2 | 10 |
| 14 | **L14**. Migrating physical servers to Microsoft Azure | 1 | 5 |
| **LW14**. Building AI applications in Azure | 2 | 10 |
| 15 | **L15**. Deploying machine learning algorithms in Azure | 1 | 5 |
| **LW15**. The use of ML studio for data classification and clustering | 2 | 10 |
| **SIW 3**. Creating the AI project in Microsoft Azure |  | 30 |
| **The Intermediate Control 2 (IC2)** |  | **100** |
|  | **Final Exam (FE)** |  | **100** |
|  | **Total (IC1+IC(MT)+IC2)/3\*0.6+FE\*0.4** |  | **100** |

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| Chairman of the methodical bureau |  | Gusmanova F. R. |
| Head of the chair |  | Mussiraliyeva Sh. Zh. |
| Lecturer |  | Karyukin V. I. |