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| **WSB University Branch/Department of Jaworzno**  |
| **Field of study: Computer Science**  |
| **Subject: Virtualisation of computer systems**  |
| **Educational profile: practical**  |
| **Level of education: undergraduate studies**  |
| **Number of hours per semester**  | 1  | 2  | 3  | 4  |
| I  | II  | III  | IV  | V  | **VI**  | VII  |
| **Full-time studies** (w/w/lab/pr/e)\*  |   |   |   |   |  | **14w/16lab**  |   |
| **Part-time studies** (w/æw/lab/pr/e)  |   |   |   |   |  | **10w/12lab**  |   |
| **LANGUAGE OF** **INSTRUCTION**  | Polish  |
| **LECTURER**   | Dr.-Ing. Jędrasiak Karol  |
| **FORM OF ACTIVITIES**  | Lecture, laboratory, consultation  |
| **SUBJECT OBJECTIVES**   | The aim of the course is to provide students with knowledge of the issues related to the principles of various computer system virtualisation solutions. In the laboratory, the student learns aspects of configuring the components of a virtual computing environment, as well as the principles of configuring individual components of computer systems.  |
| **Reference to learning outcomes**  | **Description of learning outcomes**  | **Means of verification of the effect learning**  |
| **Directional effect**  | **PRK**  |
| **NEWS**  |
| INF\_W08  | P6S\_WG  | The student has detailed and theoretically grounded knowledge of virtualisation solutions for computer systems. understands the benefits and drawbacks of using virtualisation and containerisation mechanisms in the realisation of enterprise business processes.  | oral examination, Lab report, homework report,  |
| INF\_W08  | P6S\_WG  | He is familiar with the principles of building an environment using virtualisation solutions and the guidelines associated with building high-availability mechanisms.  | oral examination, laboratory report, homework report  |
| **SKILLS**  |
| INF\_U10 INF\_U11  | P6S\_UW  | Students will be able to configure basic tools to enable virtualisation of computer systems.  | laboratory report, homework report  |
| INF\_U13 INF\_U14  | P6S\_UW  | Has the ability to implement, monitor and administer a virtual environment  | laboratory report, homework report  |
| INF\_U13  | P6S\_UW  | The student is able to configure and manage virtual networks  | laboratory report, homework report  |
| **Student workload (in teaching hours 1h =45 minutes)\*\***  |

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| **Stationary** attendance at lectures = 14 participation in exercises/laboratories = 16 Preparation for exercises/laboratory = 12 lecture preparation = 12 exam preparation/assessment = 11 implementation of project tasks = e-learning = credit/examination = 6 other (consultation) = 4 **TOTAL: 75h** **Number of ECTS credits: 3 including in practical classes: 2**  | **Part-time** attendance at lectures = 10 participation in exercises/laboratories = 12 Preparation for exercises/laboratory = 16 lecture preparation = 16 exam preparation/assessment = 11 implementation of project tasks = e-learning = credit/examination = 6 other (consultation) = 4 **TOTAL: 75h** **Number of ECTS credits: 3 including in practical classes: 2**  |
| **PREREQUISITES**  | Knowledge and competences acquired in the subjects "Operating systems" and "Computer networks"  |
| **SUBJECT CONTENT** (broken down into face-to-face and elearning classes)  | Content delivered in a face-to-face format: * Overview of solutions for virtualising computer systems
* Design and principle of operation of virtual machines
* Virtual disk management
* Management and configuration of virtual networks
* Overview of key features supporting the virtual environment
* Overview of solutions to support the construction of high availability solutions
* Introduction to virtualisation solutions in the Cloud

 Content delivered via e-learning: not applicable  |
| **LITERATURE** **COMPULSORY**  | * James E. Smith, Ravi Nair, Virtual Machines, Elsevier 2005
* Matthew Portnoy, Virtualisation Essentials, Sybes, 2012

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| **LITERATURE** **SUPPLEMENTARY** (including min. 2 items in English; book publications or articles)  | * Iain Craig, Virtual machines, Springer, 2006.
* Serafin M., Virtualization in practice, Helion, 2012

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| **TEACHING** **METHODS** (broken down into face-to-face and elearning classes)  | In direct form: * Case study
* Independent laboratory exercises
* Class discussion

 In the form of e-learning: not applicable  |
| **LEARNING AIDS**  | Multimedia presentations, demonstrations, virtual labs, Virtual Box software, VMware  |
| **PROJECT** (insofar as it is carried out as part of a course module)  | not applicable  |
| **FORM AND** **CONDITIONS OF** **PASSING** (broken down into face-to-face and elearning classes)  | * Lecture - oral examination.
* Laboratory - credit.
* Preparation of an independent study of the issues presented in the lectures, oral interview.
* Completion of assignments assigned by the laboratory instructor to be completed independently at home, return of laboratory reports, and presentation of results of completed work.
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