

Faculty of International Economics and Administration
Department: Informatics
Professional Area: Informatics and Computer Studies
Major: Web design
Educational-and-qualification Degree: Master

COURSE DESCRIPTION

1. Course unit title: Computer Architecture and Operating Systems
2. Course unit code: INF 1334
3. Type of course unit: equivalent
4. Level of course unit: Master
5. Year of study: first
6. Semester: first
7. Number of ECTS credits allocated: 6
8. Name of lecturer: Prof. Dr. Sc. Todor Stoilov
9. Learning outcomes of the course unit: The course is focused on acquiring practical skills and application of computers. The main components of the PC: CPU, system input, output systems, random-access memory, control module are dealt upon. The current level of technology for establishing and configuring the computer system is presented. The main functional properties of operating systems, how they work, problems encountered and how to solve them are also discussed.
10. Mode of delivery: face-to-face
11. Prerequisites and co-requisites: Postgraduates are required to have prior knowledge, necessary to work with and calculate binary arithmetic system. The course aims to integrate in necessary ratio hardware knowledge of a computer system with the performance of software computer resources.
12. Course contents: The aim of the course is to present the concepts, tasks, functions and interactions between the components of the structure of a computing system. Postgraduates are introduced to the summary structure of a computer; the main technical and functional components - processor, memory, input-output devices; the principles of interaction and operation of the components by interruptions. The course is oriented to advanced computing solutions, such as local and global networks. Structures and types of LANs are dealt upon. The basic functions and tasks that can be solved are presented. The potentiality of network operating systems is studied. The course presents the architecture of global networks, the resources for their implementation and the functions that are performed. The issues of data sharing in computer architecture, local and global networks are dealt upon. Different types of operating systems, programming methods for managing input and output operations, real and virtual memory management, data management, protection of resources in computing systems are also dealt upon. Special attention is paid to the issues related to multi program and multitask operating systems, the synchronization of parallel processes and the prevention of mutual locking as well as to virtual machines and resources. The relationship between the hardware and software of computing machines and systems is emphasized.
13. Recommended or required reading:
 1. Гаджев Н., Г. Димов. Компютърни системи, кн.1, Меридиан 22, София, 2001
 2. Боянов К., Турлаков, А Симеонов, и др. Компютърни мрежи, Интернет, София, 1998
 3. Тодорова Т., Компютърни мрежи, Софтпрес, 1999
 4. Нортън П., Мрежи, Инфодар, София, 1999
 5. <http://fmi.wikidot.com/karh>
14. Planned learning activities and teaching methods: Lectures (2 hours per week, 15 weeks) by developing the main topics of the discipline related to the structure of the computer, the operation of individual components, coordination of the work of computer components.
15. Assessment methods and criteria: The exam is written and practical. The written part includes the development of two questions from the synopsis within one hour. The result of the written work determines 60% of the final grade of the postgraduate. During the practical part of the exam,

postgraduates demonstrate their work and set up computer configurations. The practical test result determines 40% of the final grade.

16. Languages of instruction: Bulgarian

17. Work placement: includes practicing the tasks of configuring computing devices and networks, setting the modes of computer peripherals, diagnosing and testing the modes of the computer and its peripherals.

1. Course unit title: Operating systems

2. Course unit code: INF 1109

3. Type of course unit: compulsory

4. Level of course unit: Bachelor

5. Year of study: second

6. Semester: third

7. Number of ECTS credits allocated: 4,5

8. Name of lecturer: Chief Assist.Prof. Evgenia Rakitina, Phd (in a team with Prof. D.Sc. Todor Stoilov, PhD)

9. Learning outcomes of the course unit: The course aims at acquiring practical skills for working and using operating systems in computer systems.

10. Mode of delivery (face-to-face, distant): face-to-face

11. Prerequisites and co-requisites:

Students' prior knowledge of the technological structure of computer systems is required.

Knowledge of the nature of software technology additionally supports to pick up the teaching material.

12. Course contents (summary):

The course "Operating Systems" aims to give students knowledge in the domain of "Computer Sciences". It presents the functional principles and methods in development computer software suites. Different types of operating systems, methods for controlling input-output operations, management of real and virtual memory, management of data, protection of resources in computing systems are discussed. Particular attention is paid to issues related to operating systems for multiprogramming and multitask, synchronization of parallel processes and the prevention of mutual blocking, as well as of the virtual machines and resources. It is emphasized on the relationship between the hardware and software parts of the computer machines and systems.

13. Recommended or required reading:

1. Andrew Tanenbaum. Operating systems: design and implementation, Prentice Hall, 1998.

2. Л. Николов. Операционни системи, Ciela, София, 2009.

3. MCSE Training Microsoft Windows 2000, Софтпрес, 2000.

4. <http://fmi.wikidot.com/os>

5. http://gama.vtu.lt/biblioteka/Operating_systems/Operating_systems.pdf

14. Planned learning activities and teaching methods: lectures (2 hours per week, 15 weeks), working out the main topics of the course on the structure of the operation system, functions, working mode of the different components and their management.

15. Assessment methods and criteria:

The examination on the course is written and practical. The written part involves the elaboration of two topics from the synopsis within one hour. The grade for the written part makes 60% of the final assessment of the student. During the practical part of the examination students demonstrate work with design and animation of files with HTML and Java Script codes. The grade from the practical examination makes 40% of the final assessment.

16. Language of instruction: Bulgarian

17. Work placement: The practical sessions include the elaboration of a program code and its testing.