Study program: Information Technology

Course title: INFORMATION SYSTEMS

Teacher(s): Stefanovic D. Nenad

Course status: mandatory

Number of ECTS credits: 6

Prerequisite courses: none

Course objectives

Mastering methods, techniques, and tools for designing and developing information systems as well as languages for modeling processes, data and software.

Introduce students to the basic concepts of information systems and the possibilities of applying them in various fields.

Learning outcomes

Knowledge acquired by students after mastering the program: Ability to independently develop information systems at all stages of the life cycle and their implementation.

Skills acquired by students after mastering the program: The ability to apply techniques and methods for the development of information systems, as well as the management of information systems development projects. Efficient use of techniques and tools for modeling, data management, application development, data analysis, reporting, and implementation.

Attitudes that students acquired after mastering the program: importance, role, and use of information systems, communication (ability to communicate with IS users, team members), presenting solutions (ability to clearly and convincingly present solutions), overcome the complexity of problems (ability to present the real complexity of the system in the clearest possible way) and fulfilling goals (the necessity for the set goals of the information system to be achieved).

The acquired knowledge will be able to be used by students in various jobs and in various fields.

Content of the course

Theoretical teaching

Basics of information systems (functions, roles, application, etc.). Development of information systems – methods, techniques, and tools. Methods and techniques of managing information systems development projects. Managing user requirements. Modeling processes and data flows (IDEF0, BPMN, DFD). Structural system analysis; Business Process Management (BPM); Conceptual and logical data modeling (PMOV, ORM, IDEF1X, etc.). Big Data and NoSQL databases. Object-oriented analysis and design. Unified modeling language - UML (diagrams and RUP). Types of information Systems (ERP, SCM, CRM, MRP, etc.) User interface and experience design. Business intelligence and data analysis. Reporting and visualization. Implementation of information systems.

Practical teaching

Work in concrete CASE tools and techniques for modeling, designing, developing, testing and implementing information systems (Enterprise Architect, Visio, etc.). Work on specific tasks and examples. Consultation during the preparation of the project assignment.

Development of information systems in a specific software environment (Microsoft Access, SQL Server, SharePoint Online, Oracle APEX, MEAN stack, etc.). Creating mobile applications on a specific platform (Power Platform, Xamarin, etc.).

Business Intelligence – data management and development of reports, dashboards and machine learning models (Power BI, Azure Machine Learning).

Azure cloud computing platform (services for integration, storage and analysis of data); Development and programming of commercial business information systems (ERP) (Microsoft Dynamics Business Central/365 – AL/X++ or SAP ABAP).

Literature

[1] A. Njeguš, Poslovni informacioni sistemi, Univerzitet Singidunum, 2021.
[2] Rainer, Kelly Rex, Jr.; Turban, Efraim. Uvod u informacione sisteme, Beograd : Data status, 2009.
[3] N. Stefanovic: Poslovna inteligencija u složenim B2B mrežama, PMF, 2016.
[4] Kenneth C. Laudon, Jane Laudon, Management Information Systems: Managing the Digital Firm, Global Edition, Pearson Education, 2021.
[5] R. Kelly Rainer, Reiner R. Kelly, Brad Prince, Introduction to Information Systems John Wiley & Sons, 2022.
[6] Oficijalni materijali iz Microsoft Business Applications Academic Community programa.
[7] Отворени образовни ресурси: Microsoft Learn, SAP Learning, edx.org, coursera.org, Oracle University, 2023.

Number of active teaching classes: 4	**Theoretical teaching: 2**	**Practical teaching: 2**

Teaching methods

Lectures and exercises in a computer classroom equipped with video beam, computers, and Internet access. Combination of classical teaching with e-learning and appropriate literature. Interactive teaching with multimedia content. Problem-oriented teaching, practical teaching, independent student work - homework and project tasks. Use of the latest web platforms (Microsoft 365) in teaching, communication, teamwork, application development and collaboration. Regular and on-demand consultations both in person and via video conferencing platform.

Evaluation of knowledge (maximum number of points 100)

Pre-exam obligations	**Points**	**Final exam**	**Points**
Activities during teaching process	4	Final exam (written):	30
Tests	46 (23+23)	Final exam (oral):	20