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|  | **Course Syllabus** |

**1.** **Course Title:**

System integration and corporate information systems

**2. Academic Level:**

Master

**3. ECTS Credits:**

5 ECTS

**4. Semester:**

2, spring semester

**5. School/Department:**

Institute of Computer Technologies and Information Security

**6. Location:**

Taganrog Campus, 2 Chekhova St., Taganrog

**7. Instructor:**

Associate Prof. Sergei Kucherov, email: [skucherov@sfedu.ru](mailto:skucherov@sfedu.ru)

**8. Language of Instruction:**

English

**9. Course Description:**

The course is aimed at developing students' knowledge, skills and abilities in the field of organizing a corporate IT infrastructure. The concept and processes of formation of enterprise architecture, as well as technologies, methods and frameworks for its description are considered. Methods and technologies for integrating information systems are being studied.

**10. Course Aims:**

- obtaining knowledge on system integration and enterprise automation with ready-made software solutions;

- development of skills for the selection of modern technological solutions for the integration of each individual system or group of systems;

- acquisition of skills for putting into operation of information systems and their integration with existing internal and external systems.

**11. Specific entry requirements (if any):**

This course relies on basic knowledge, skills and abilities formed upon obtaining a previous level of education (bachelor in the field of information technologies).

**12. Course Content:**

Module 1. General issues of integration of corporate information systems.

- General issues of integration of corporate information systems: evolution of approaches, methodology of open systems, main problems of integration, types of integration solutions, enterprise architecture (EA) and basic frameworks / architecture standards.

- Technologies and standards of integration: Integration based on the middleware; integration of the procedure call level (COM family, RMI, CORBA); data integration (XML, XSD, XLST); integration at the service level (web services, sockets).

Module 2. Development of integration solutions.

- Design and development of integration solutions: binding patterns; middleware architecture; ways to link applications; topology of integration solutions; technologies for adaptation and localization of software products.

**13. Intended Learning Outcomes:**

Know:

‒ Methods and approaches to the integration of software and information systems; basic international standards in the field of information systems integration;

‒ Methods and approaches to verification and testing of information systems;

‒ Automated testing tools;

‒ Methods and principles of building a corporate information environment;

‒ Architectures of modern enterprise management systems.

Be able to:

‒ Develop models and tools for integrating software and information systems;

‒ Design and implement plans for complex testing;

‒ Effectively and skillfully apply all kinds of testing methods;

‒ Inspect the software development process to assess the effectiveness of quality control;

‒ Apply in practice ready-made solutions in the field of information technology of the enterprise;

‒ Arrange, interface and integrate enterprise management information systems.

Skills:

‒ Maintenance of integration processes of software systems with other software and information systems of the enterprise;

‒ Development of a corporate information environment for an enterprise.

**14. Learning and Teaching Methods:**

Lecture, seminar, demonstration, laboratory work

**15. Methods of Assessment/Final assessment information:**

During the course: assessment of laboratory works, individual task. Final assessment – exam

**16. Reading List:**

1. Chernikov B. V. Information management technologies [Text]: textbook for students. universities. - 2nd ed., revised. and additional .. - M. : FORUM : INFRA-M, 2014. - 367 p. : ill .. - (Higher education). - Bibliography: p. 358-359 (22 titles). - ISBN 978-5-8199-0524-1. - ISBN 978-5-16-005762-0

2. Corporate information systems: textbook / A. Yu. Nikitaeva, O. A. Chernova, M. N. Fedosova; South Federal University. - Rostov-on-Don; Taganrog: Publishing House of the Southern Federal University, 2017. - 149 p. ISBN 978-5-9275-2236-1