Syllabus on the course “Enterprise Architecture Perfecting”

Approved by Programme Academic Council

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| Credits | 3 |
| Academic Hours | 114 |
| Year of study | 1 |
| Mode of study | Full-time |

1. **Pre-requisites:**

* Scientific seminar "Enterprise architecture"
* Bachelor course “System analysis”
* Bachelor course “The foundations of business process modelling”

1. **Course Type:** compulsory
2. **Abstract:**

The course «Enterprise Architecture Excellence» is aimed on acquiring the advanced level of knowledge in the field of Enterprise Architecture, business processing modelling and improvement. This course provides models and mechanisms of creation of Enterprise and IT architectures that are used in Russian industry companies. Two cases are aimed on practical implementation of the knowledge acquired.

1. **Learning Objectives**

After passing the exam students should:

**Know :**

* methods and tools of Enterprise architecture Excellence;
* methods of EA optimization;
* benchmarks for B/IT efficiency;
* business functions and system of business management;
* methods of functional business-tasks analysis

**Have an ability :**

* to manage enterprise architecture
* to manage life-cycles of Information Systems (IS)
* to use methods and instruments for adjusting business models;
* to use methods of innovational and entrepreneurial management

This course is aimed on acquiring the following competences:

* Newest approaches for EAE modeling
* Application of advanced architecture principles, models and standards
* Methodologies of EAE modeling
* Understanding of change management methodology
* Acquiring practical knowledge for EAE constructing

1. **Learning Outcomes**

Studying this course student obtains the following competences:

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| --- | --- | --- | --- |
| Competence | Descriptors – main features of knowledge acquiring (indicators of result achievement) | Forms and methods of learning that contribute to formation and development of competence | Form of control of competence formation level |
| Ability to work with information from different sources | Student uses all available information sources | Lections, Seminars, Case-studies | Writing assignments, home assignments, exam |
| Enterprise Architecture analysis | Student shows possibilities of selecting types of EAE |
| Capability to formulate scientific goals in EA research | Student shows the understanding of the practical field of EAE |
| Application of program components for handling , analysis and classification of information | Student shows the application of necessary instruments for researchers |
| Preparation of scientific (technical) reports, presentations, scientific publications | Student uses reports, presentations during seminars and prepares publications on the topic |
| Develop and integrate the Enterprise architecture components | Student analyses the possible ways of EAE, provides arguments for and against of application of IA type, shows understanding of architecture development process |

1. **Course Plan**
2. Strategic management of enterprise from the viewpoint of enterprise architecture
3. Operational enterprise management from the viewpoint of enterprise architecture
4. Information and socio-technical systems from the viewpoint of enterprise architecture
5. Foundations of social management for enterprise
6. Review from industry about popular EA methodologies: Zachmann, META Group, DoDAF, FEA, LEAD и TOGAF
7. EA modelling according to DoDAF. Modelling of capabilities and standards
8. EA modelling according to TOGAF. Instruments and ways of modeling
9. EA modelling according to TOGAF. Instruments and ways of modeling. Architecture change management, Requirements management. Enterprise continuum, ACF and other parts of methodology
10. Peculiarities of EAE modeling of large scale holding structures: architectural patterns for appropriate scaling
11. Service-oriented Architecture (SOA) and its relevance in modern EA. Future concept development, alignment of business processes with «cloud» solutions
12. Practical cases of EAE modelling (telecommunication industry, oil & gas industry)
13. Practical cases of EAE modelling (application in banking industry, etc.)
14. Essays
15. Final exam
16. **Reading List**

**Required**

1. Business Architecture: A Practical Guide by Jonathan Whelan and Graham Meaden. Routledge (15 April 2016), 304 c. URL: <https://doi.org/10.4324/9781315570563>

2. Service Oriented Enterprises BySetrag Khoshafian. Auerbach Publications (19 April 2016),464c. URL: <https://doi.org/10.1201/9781420013269>

3. Enterprise architecture. [Electronic resource]. URL https://learn.open2study.com/mod/youtube/view.php?id=42933. Access: Free.

**Optional**

1. Rational Enterprise Architecture by Leendert van der Torre and Marc van Zee.pp. 9-18 (04 June 2017). URL: <https://link.springer.com/chapter/10.1007/978-3-319-60042-0_2>

# 2. Enterprise Architecture Modelling: Purpose, Requirements and Language. IEEE (15 November 2018) URL: <https://ieeexplore.ieee.org/abstract/document/8536117>

1. **Grading System**

Form of exam and the final mark structure **Exam= 50%, 50% = essays, cases, seminar activity**

1. **Guidelines for Knowledge Assessment**

***Similar questions and tasks for exam:***

Topic 1.

1. Enterprise architecture definition.
2. What are the parts of EAE? What is their purpose?
3. What is the role of IT strategy and IT-architecture in business changes?

Topic 2.

1. What is Balanced Scorecard and how it is used for strategic governance?
2. What is EFQM Excellence Model?
3. What is ISO 9001:2000?
4. What is COBIT?
5. What is ITIL?
6. What is CMMI?

Topic 3.

1. How many rows and columns does Archimate model have? Why?
2. What elements in Archi are used to model the business architecture?

Topic 4. Which elements are used for information architecture and technological architecture modelling in Archi?

Topic 5.

1. Please name the structure of Architecture description of Zachmann model?
2. Which other models you know?
3. Which architecture methodology you suppose is the best?

Topic 6.

1. Name the main phases of ADM TOGAF.
2. What are the main outcomes of Preliminary phase?
3. What are the main outcomes of Architecture vision?
4. What are the main outcomes of Business architecture phase?
5. What are the main outcomes of Information systems architecture?
6. From what parts Information Systems architecture consists?
7. Describe the concept of application architecture and data architecture
8. Describe the concept of integration architecture

Topic 7.

1. Define technology architecture.
2. What are the main outcomes of Technology architecture phase?
3. What are the main outcomes of Opportunities and Solutions phase?
4. What are the main outcomes of Migration planning phase?
5. What are the main outcomes of Implementation Governance phase?

Topic 8.

1. What are the main outcomes of Architecture change management phase?
2. What are the main outcomes of Requirements management phase?
3. What for TOGAF Repositary is used?
4. What TOGAF extensions do you know and how they are used?

Topic 9.

1. Describe the peculiarities of SOA.
2. Describe connection of SOA notion with Enterprise architecture.
3. What are the advantages of cloud solutions whilst IT architecture development?
4. **Methods of Instruction**

Educational technologies used in the implementation of various types of educational work: reports, discussions, problem solving, case studies.

1. **Special Equipment and Software Support (if required)**

For preparing practical tasks, reports and presentations following program tools are used:

* Standard packages of programs, inc:
  + Essays & assignments (Microsoft Word);
  + Presentations (Microsoft PowerPoint);
* The Open Forum Archimate/ Archi