APPROVED
By the Dean of the Faculty of Electronics and Informatics of Vilniaus kolegija/Higher Education Institution
By Order No. EI V2- 24 of August 31, 2023

VILNIAUS KOLEGIJA/HIGHER EDUCATION INSTITUTION
FACULTY OF ELECTRONICS AND INFORMATICS
SOFTWARE DEVELOPMENT DEPARTMENT

METHODOLOGICAL GUIDELINES FOR FINAL PRACTICE ACTIVITIES

SOFWARE ENGINEERING, state code 6531BX028

Approved at the meeting of the Software Development Department
August 30, 2023
Protocol No. EI K-11

2023

INTRODUCTION

The Methodological Guidelines are intended for students of the Software Engineering study programme (state code 6531BX028) of the Faculty of Electronics and Informatics of Vilniaus kolegija/Higher Education Institution. The instructions presented in this document describe the object of the Final Practice Activity and the requirements for the Final Practice Activity Report.

1. STRUCTURE OF THE FINAL PRACTICE ACTIVITY

The Final Practice Activity consists of the following parts:

• the software part of the Final Practice Activity;

• Final Practice Activity Report;

• Final Practice Activity evaluation form from the Final Practice Activity supervisor at the placement organization (Appendix 2).

1.1. Software part of the Final Practice Activity

The software part of the Final Practice Activity can be:

- an application that solves tasks of an applied nature, tailored to one or a group of users;
- an app for a smart device;
- website;
- dedicated software for managing devices and/or data flows;
- a separate part or a group of software parts of a certain software being developed dedicated to a larger and global project.

The software part of the Final Practice Activity cannot be:

- constructed solely from pre-existing software implementation(s), without using any embeddings or fragments of the student's code;
- developed software that is not available at Vilniaus kolegija/Higher Education Institution and a student cannot freely access a license to the selected software (except for the cases where it is possible to demonstrate the operation of the developed application on a virtual or remote machine).

1.2. Final Practice Activity Report

The Final Practice Activity Report must be prepared in accordance with the General Requirements for Academic Papers. Important information on General Requirements for Academic Papers is publicly available on the Methodological Guidelines page of the Faculty website: https://eif.viko.lt/studentams/metodiniai-nurodymai

The Final Practice Activity Report consists of the following elements:

1. Title page (an example can be found in Appendix 1).

2. Table of contents.

3. Introduction.

4. Formulation of the Practice Activity task.

5. Practice Activity task analysis.

6. Description of software implementation.

7. User manual.

8. Conclusions and recommendations.

9. List of references.

10. Appendices.

1.2.1. Introduction

In this part, the trainee must submit:

- A brief description of the organization and its activities, and an analysis of the organization's IS.
- Definition of the problem area examined during the Practice Activity.
- The goal of the Final Practice Activity, which must be specific, measurable, and realistically achievable.
- The tasks that define the scope of the work and match the goal. The tasks must be numbered.

The length of this part is 1-2 pages.

1.2.2. Formulation of the Practice Activity task

In this part, the trainee must submit:

- Functional and non-functional requirements for the system. Functional requirements define what the software implementation will be able to do. These requirements specify the main and auxiliary functions of the developed application. The main functions are intended to realize the goal of the developed application. Auxiliary functions are those that are influenced by the technological requirements. As a rule, auxiliary functions are used for upkeeping or maintenance of software implementation (work logging, data archiving, statistics collection, etc.). When formulating functional requirements for each function, its initial data, the actions performed by the function, and the result are specified. The procedure for performing the functions and, if any, the restrictions on their performance are also specified. Non-functional requirements are those requirements that limit the set of possible design solutions.

- When the calculations are made - the formulae used must be explained.

The length of this part is 3-5 pages.

1.2.3. Practice Activity task analysis

In this part, the trainee must submit:

- Use case diagram and its description.
- Activity diagram and its description.
- Other UML diagrams and their descriptions.
- Entity-relationship diagram (or its alternative) and its description.
- Class diagram (or project directory structure or its alternative) and its description.

The length of this part is not less than 10 pages.

1.2.4. Software implementation

In this part, the trainee must submit:

- Descriptions of the main software implementation files, revealing their purpose and interdependence.
- Descriptions of classes and their methods: performed actions, initial data, structure of received results.
- The physical model of the database (if any) and its description.
- Descriptions of other software structures, such as components, modules, and their relationships.

In the Final Practice Activity Report, the code snippets must be uploaded using *Courier New* font. Screenshots of the code cannot be uploaded to the Final Practice Activity Report.

The length of this part is not less than 20 pages.

1.2.5. User manual

In this part, the trainee must submit:

- The dependence of the software implementation on other software products (give a description without which systemic or other processes, the implementation of the software components cannot be started for execution).
- The parameters of the hardware under which the student prepared the software implementation and tested it.
- A detailed description of the software implementation.

- A description of typical configuration (if any).
- A detailed description of the launch of the software implementation (especially for those implementing mobile apps, websites, or other services related to Internet technologies).
- Steps to eliminate the software implementation.

If a certain part is missing from the user manual, provide a reasoned explanation.

The length of this part is not less than 15 pages.

1.2.6. Conclusions and recommendations

In this part, the trainee must submit:

- Conclusions that correspond to the tasks addressed and relate to the practical work. Conclusions must be numbered, reasoned, specific, comprehensive, and consistent with the goal and tasks of the practice. At least one conclusion should be drawn for each task, briefly outlining what has been done to achieve the task and what results have been obtained, highlighting the practical importance.
- Suggestions on how the results obtained during the practice can be improved.

The length of this part is 1-2 pages.

1.2.7. List of references

This part lists all the sources of information that were used for the practice assignment. This part is not numbered. The list of information sources is arranged alphabetically by the authors' surnames. If the authors' surnames/names are not given in the bibliographic description, this description is arranged by title. The list of information sources starts with information sources in Lithuanian. The list continues with the descriptions of information sources published in other languages. All sources listed are written in the original language.

Note: Bibliographic descriptions of information sources published in languages based on the Cyrillic alphabet are listed last.

Books (including electronic books) are included first in the list of information sources.

For information sources, it is recommended to indicate the resources of the databases and/or electronic books which are subscribed by Vilniaus kolegija/Higher Education Institution. Sources of information can be:

• books;

• periodicals;

• electronic information sources, etc.

Sources of information must be cited in the text of the practice description.

The list of information sources is compiled in accordance with the rules of APA citation style.

The list of information sources must contain at least 8 information sources.

1.2.8. Appendices

In this part, the trainee may provide illustrative material, diagrams, charts, graphs, tables, sample reports, and others that do not fit in the main body due to their large size or require a change in text formatting.

The appendices are listed in the order in which they are mentioned.

2. PROCESS AND MANAGEMENT OF FINAL PRACTICE ACTIVITY

During the Final Practice Activity, interim settlements take place according to the schedule drawn up by the Faculty practice activity supervisor. During the assessment of the Final Practice Activity process, the student demonstrates the software product developed during the practice and provides the Final Practice Activity Report and the Final Practice Activity evaluation form from the Practice Activity supervisor at the placement organization.

APPENDIX 1. TITLE PAGE OF FINAL PRACTICE ACTIVITY

VILNIAUS KOLEGIJA/HIGHER EDUCATION INSTITUTION
FACULTY OF ELECTRONICS AND INFORMATICS
SOFTWARE DEVELOPMENT DEPARTMENT

FINAL PRACTICE ACTIVITY REPORT

PA 6531BX028 PI__X

PRACTICE LOCATION:	NAME OF PRACTICE ACTIVITY PLACEMENT ORGANIZATION IN LITHUANIAN NAME OF PRACTICE ACTIVITY PLACEMENT ORGANIZATION IN ENGLISH	
PRACTICE ACTIVITY SUPERVISOR AT THE PLACEMENT ORGANIZATION	_ - __ - 202_	NAME SURNAME
STUDENT	_ - __ - 202_	NAME SURNAME
FACULTY PRACTICE ACTIVITY SUPERVISOR	_ - __ - 202_	NAME SURNAME

202_

APPENDIX 2. PRACTICE ACTIVITY EVALUATION FORM FROM THE PRACTICE ACTIVITY SUPERVISOR AT THE ORGANIZATION

VILNIAUS KOLEGIJA
FACULTY OF ELECTRONICS AND INFORMATICS

Student _____
(Name, surname)

Study programme – **Software Engineering**,

study mode – **full-time**, year – **4**, group – **PI __ _**.

Practice activity location
_____
_____

Duration of practice activity – from **_-__-202_** to **_-__-202_**, practice scope – **15 credits.**

Faculty practice activity
supervisor_____
(Name, surname, signature)

_____

EVALUATION OF THE STUDENT PERFORMANCE OF THE FINAL PRACTICE ACTIVITY

1. Attitude to work (interest in work, proactiveness, dutifulness, neatness, discipline, etc.):_____
_____
_____

2. Deficiencies of theoretical preparation that became apparent during the practice:
_____
_____
_____

3. Quality of completed tasks, autonomy: _____
_____
_____
_____
_____

4. Assessment of the practical work in grades _____

Practice activity supervisor at the placement organization

_____
(Name, surname, position)

_____

____d._____m._____y. 202_

Signature
A.V.