APPROVED BY
The Dean of the Faculty of Electronics and Informatics,
Vilniaus kolegija/Higher Education Institution
April 20, 2023 by Order No. EI V2-19

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

METHODOLOGICAL GUIDELINES OF PROFESSIONAL PRACTICE ACTIVITIES

SOFTWARE ENGINEERING, state code 6531BX028

Approved in the meeting of the Software Development Department
April 14, 2023
Protocol No. EI K-8

2023

INTRODUCTION

The methodological guidelines are designed 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 professional practice activity and the requirements for the professional practice activity report.

1. STRUCTURE OF PROFESSIONAL PRACTICE ACTIVITY

Professional practice consists of the following parts:

- software design and implementation part.
- report on the professional practice activity.
- evaluation form on the professional practice activity of the professional practice activity supervisor in the placement organization (Appendix 2).

1.1. Software design and implementation part

Software design part of the professional practice activity can be:

- a program which addresses applied tasks, intended for one or a group of users;
- smart device application;
- website;
- software for embedded devices and data stream control.

Software design and implementation (project) part of the professional practice activity should not be:

- designed from already existing software without the use of any code snippets or fragments of the undergraduate source code;
- designed using software that is not used at Vilnius University of Applied Sciences and the undergraduate cannot freely dispose the license of the chosen software (except when it is possible to demonstrate designed software on a virtual or remote machine).

1.2. The professional practice activity report

The professional practice activity report must be prepared in accordance with the General Requirements for Academic Papers at Vilniaus kolegija/Higher Education Institution, approved by the dean of the faculty of Electronics and Informatics. Important information of 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 professional practice activity report is comprised of the following structural elements:

1. Title page. An example of a title page for a report on professional practice can be found in Appendix 1.
2. Table of contents.
3. Introduction.
4. Relevance of the professional practice activity task.
5. Professional practice activity task analysis.
6. Description of software realization task.
7. Implementation and user manual.
8. Conclusions and recommendations.
9. List of references.
10. Appendices.

1.2.1. Introduction

In this part, the trainee must submit:

- Brief description of the company and its activities, analysis of the company IS.
- Definition of the problem area examined during the professional practice.
- The aim of professional practice, which must be specific, measurable, and realistically achievable.
- Tasks that define the scope of work and match the goal. Tasks must be numbered. The length of the chapter 1-2 pages.

1.2.2. Relevance of the professional practice activity task

In this part, the trainee must submit:

- Functional and non-functional requirements for the system. The functional requirements specify what the software implementation should do. These requirements specify the main and auxiliary functions of the developed program. The main functions are intended to realize the goal of the developed program. The auxiliary functions are those that are influenced by the technological requirements. Auxiliary functions are usually for the maintenance or upkeep of the software implementation (work logging, data archiving, statistical collection, etc.). When formulating the functional requirements for each function, its output data, the actions performed by the function and the result are specified. The order of execution of the functions and any restrictions on their execution are also specified. Non-functional requirements are requirements that limit the set of possible design solutions.

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

The length of the chapter is 3-5 pages.

1.2.3. Professional 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;
- ER diagram (or its alternative) and its description;
- Class diagram (project directory structure or its alternative) and its description.

The length of task analysis chapter is not less than 7 pages.

1.2.4. Description of software realization task

In this part, the trainee must submit:

- Descriptions of the most important software implementation files, showing their purpose and interdependence.
- Descriptions of classes and their methods: the order of executed steps, initial data, structure of the results.
- The physical model of the database (if any) and its description.
- Descriptions of other software constructs, such as components, modules and their interrelationships.

Software code fragments must be uploaded using C*ourier New* typeface. It is prohibited to upload screenshots of the code.

The length of software implementation chapter is not less than 10 pages.

1.2.5. Implementation and user manual

In this part, the trainee must submit implementation guide:

- the dependency 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).
- identify computer hardware parameters on which the software implementation was performed and tested.
- a detailed description of the software implementation.
- a description of typical configuration (if any).

- a detailed description of the software implementation (especially the implementation of mobile apps, websites or other services based on internet technologies).
- steps to eliminate software implementation.

The length of the chapter is not less than 8 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 purpose and tasks of the professional practice activity. For each task, at least one conclusion must be formulated, briefly stating what was done to implement the task and what results were achieved, emphasizing the practical importance.
- Suggestions on how the results achieved during the practice can be improved.

The length of the chapter from 1 to 2 pages.

1.2.7. The list of references

This section lists all the sources of information that were used for the practice assignment. The section 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 sorted by title. The list of information sources starts with information sources in Lithuanian. The list continues with 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.

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 5 information sources.

1.2.8. Appendices

In this section, the trainee may submit 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 PROFESSIONAL PRACTICE ACTIVITY

During professional practice, interim settlements take place according to the schedule drawn up by the faculty practice activity supervisor. During the assessment of the professional practice process, the student demonstrates the software product created during the practice and submits the professional practice report and the practice supervisor's evaluation form to the professional practice placement organization.

1 APPENDIX. TITLE PAGE OF PROFESSIONAL PRACTICE ACTIVITY

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

PROFESSIONAL PRACTICE ACTIVITY REPORT

PA 6531BX028 PI20X

PRACTICE PLACE: ORGANIZATION NAME

PRACTICE SUPERVISOR IN THE PLACEMENT ORGANIZATION	202_ - __ - __	NAME SURNAME
STUDENT	202_ - __ - __	NAME SURNAME
PRACTICE SUPERVISOR IN THE FACULTY	202_ - __ - __	NAME SURNAME

202_

2 APPENDIX. THE PRACTICE ACTIVITY EVALUATION FORM FOR THE PRACTICE ACTIVITY SUPERVISOR IN THE PLACEMENT ORGANIZATION

VILNIAUS KOLEGIJA/HIGHER EDUCATION INSTITUTION
FACULTY OF ELECTRONICS AND INFORMATICS

Student_____
(name, surname)

Study programme – **Software engineering**,

Study form – **full-time**, year – **3**, group – **PI __ _**.

Practice activity place_____
_____

Duration of practice activity– from **202_-__-__** to **202_-__-__**, practice scope – **12 credits.**

Faculty practice activity supervisor _____
(name, surname, signature)
_____

EVALUATION OF THE STUDENT PERFORMANCE OF THE PROFESSIONAL PRACTICE ACTIVITY

1. Attitude to work (interest in work, initiative, duty, neatness, discipline, etc.):
_____
_____
_____

2. Weaknesses of theoretical preparation, that revealed during professional practice activity:
_____
_____
_____
_____
_____

3. Quality of the executed tasks, autonomity:_____
_____
_____
_____
_____

4. Assessment of the practice in grades _____

Practice supervisor of the placement organization_____
(name, surname, responsibilities)
_____

yy/mm/dd

Signature
A. V.