



## **IMPLEMENTATION OF SHORT CYCLE PILOT ONLINE PROGRAM WEB APPLICATION PROGRAMMER**

Project Acronym:	PT&SCHE
Project full title:	The Introduction of part-time and short cycle studies in Serbia
Project No:	561868-EPP-1-2015-1-EE-EPPKA2-CBHE-SP
Funding Scheme:	ERASMUS+
Coordinator:	Tallinn University, TLU
Project start date:	October 15, 2015
Project duration:	36 months

Abstract	VISER organized online program Web application programmer in the summer semester of 2017/2018 school year.
----------	--

*"The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein."*

---

## DOCUMENT CONTROL SHEET

---

Title of Document:	Implementation of short cycle pilot F2F programs
Work Package:	WP5. Pilot implementation of F2F PT & SCHE programs
Last version date:	07/11/2018
Status :	Draft
Document Version:	2.0
File Name	WP5.5.-VISER-PT-Implementation of online programs
Number of Pages	43
Dissemination Level	Institutional

---

## VERSIONING AND CONTRIBUTION HISTORY

---

Version	Date	Revision Description	Responsible Partner
1.0	12.07.2018.	Final version	Svetlana Štrbac-Savić, VISER Vera Petrović, VISER

---

## TABLE OF CONTENT:

DOCUMENT CONTROL SHEET .....	2
VERSIONING AND CONTRIBUTION HISTORY .....	2
1. Introduction .....	4
2. Realization of short cycle program Web Application Programmer .....	5
3. Technical realization of the program .....	11
4. Administration of short cycle programs .....	14
5. Learning materials .....	16
6. Exams and knowledge tests.....	19
7. Survey .....	23
.....	39
8. Sertificate.....	40
9. CONCLUSION.....	43

---

# 1. Introduction

Technological advancement has caused changes in the way people live. In the past, the learning process was preparation for professional work and took place during a period of life before employment. However, today, people have to improve throughout their entire life, and often re-qualify because the labor market changes rapidly, with some jobs completely disappearing, or the number of needed people dropped in some fields, while new jobs appear in some other areas. In addition to the changes that are caused by the labor market, it is often necessary that people in the same workplaces have to be trained to use new technologies. So lifetime learning is really necessity for most people.

In response to these needs, the Law on Higher Education of the Republic of Serbia, adopted in September 2017, envisioned short cycle study programs. This form of study aims to enable re-qualification of people who have completed studies (have 180 ECT or more) and can't find a job in their profession or have completed studies in the field of short cycle program a long time ago but they do not manage to apply new technologies in their field. The point is to enable people in short time to learn necessary skills. To make this possible, the short cycle program must be well designed and implemented.

The School of Electrical and Computer Engineering of Applied Studies in Belgrade has created four short cycle programs. Two online programs in the field of computing: Web application programmer and Computer Programmer/Analyst, and two face to face programmes: Vehicle diagnostics and Professional development of professors and teachers.

Web application programmer is online short cycle program. The goal of this program is to train a student to master and implement web technologies in order to create web applications. This short cycle program has five courses: Web Design, Standard User Interfaces, Object Programming, Internet Programming and Visual Programming Techniques.

During the 2017/2018 school year short cycle program Web application programmer was in the summer semester of the school year 2017/2018. 18 students were enrolled in this program, and they didn't pay tuition fees.

All students have previously finishes undergraduate studies, because the low demanded that enrolled students to short cycle program have already at least 180 ETS points on some accredited high education institution.

---

## 2. Realization of short cycle program Web Application Programmer

School of Electrical and Computer Engineering of Applied Studies in Belgrade has an extensive experience in distance learning. Since 2012/13 school year our school has a distance learning study program The New Computer Technologies. A lot of learning materials were developed for the realization of online teaching, and during the years those materials were changed and adjusted to online learning along with improvement of the whole teaching process.

This experience helped a great deal implementation of short program Web application programmer. Of course a lot of changes had to be made because courses in the short cycle program had to be more practical, and performed in shorter time then the courses for regular students. In preparing materials for short cycle programs and in general in their organization, it should be taken into consideration that program participants have different backgrounds, as some of the students are from technical professions and have previous knowledge, while some students have previous education in other areas. That is why it was difficult to make a choice of courses and make the syllabus of courses so that all students can successfully prevail the program. Also, emphasis on these courses had to be on the practical work of students, while the theoretical aspects were reduced to a minimum. That is why new syllabus and learning materials had to be created for realization of each course according to this demands.

Short cycle program Web application programmer was organized at School of Electrical and Computer Engineering of Applied Studies in Belgrade in 2017/18 school year.

News about scholarship for short-cycle pilot studies was published on official project web site and VISER web site. News is still available on link:

<http://pt-sche.metropolitan.ac.rs/2017/10/02/school-of-electrical-and-computer-engineering-of-applied-studies-in-belgrade-in-school-year-20172018-offered-scholarships-for-part-time-and-short-cycle-pilot-studies/>

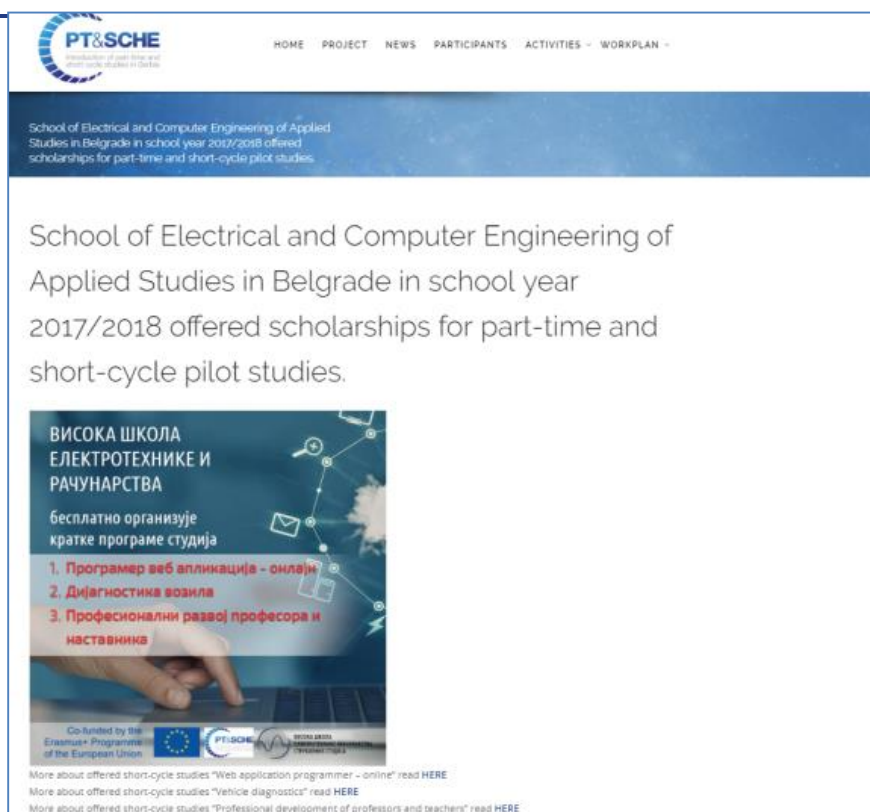


Fig.2.1 New on project website and VISER website

Candidate application for two short cycle F2F programs and one online short cycle program was published on VISER official web site and on project official web site. Data that was required from candidate was candidate name, phone number, institution on which candidate works (if he works) and data about completed studies. Candidate application was conducted by e-mail communication with potential candidates.

<http://websrv3.viser.edu.rs/index.php?page=static&id=1035>

A lot of people were interest in this program, and we received in just three days three times more applications of candidates than we could enroll. It was not easy to choose between registered candidates, so as we thought that a more uniform level of knowledge of the received candidates would be the best criteria for selection. Fig.2.2 shows that all selected candidates have completed some of the technical faculties or the Faculty of Mathematics, and they all have some basic knowledge of working with computers.

VISER enrolled 18 students to online program *Web application programmer*.

List of enrolled students is given in the *Table 1*.

No	List of enrolled students to F2F program <i>Professional development of professors and teachers programme</i> on February 2018
1.	Aleksandrov Radica
2.	Almaši Jasmina
3.	Božović Srđan
4.	Đurđević Maja
5.	Karić Nevenka
6.	Krmar Marić Danijela
7.	Mladenović Aleksandar
8.	Nikolić Aleksandra
9.	Njegomir Milan
10.	Pastor Arpad
11.	Pastor Zagorka
12.	Petrović Nenad
13.	Ranković Nebojša
14.	Simović Slaviša
15.	Simonović Dejan
16.	Takov Marina
17.	Ćurčin Relja
18.	Ševarika Predrag

**Table 1** – List of enrolled students to *Web Application Programmer online program*

List of enrolled students to online program *Web application programmer* is available on the VISER site on links:

<https://www.viser.edu.rs/stranica/programer-veb-aplikacija>

and also

<https://www.viser.edu.rs/projekti/ptsche>

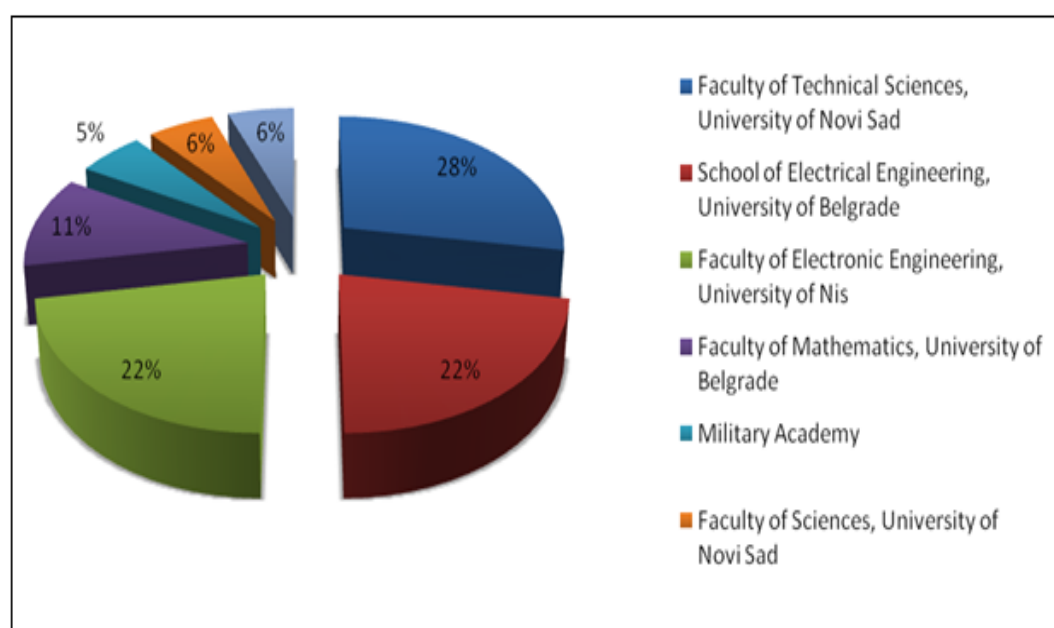


Fig.2.2 Previous education of enrollment of students

Eighteen students from the all over Serbia were enrolled to short cycle program Web application programmer. Fig.2.3. Students did not pay tuition fee.

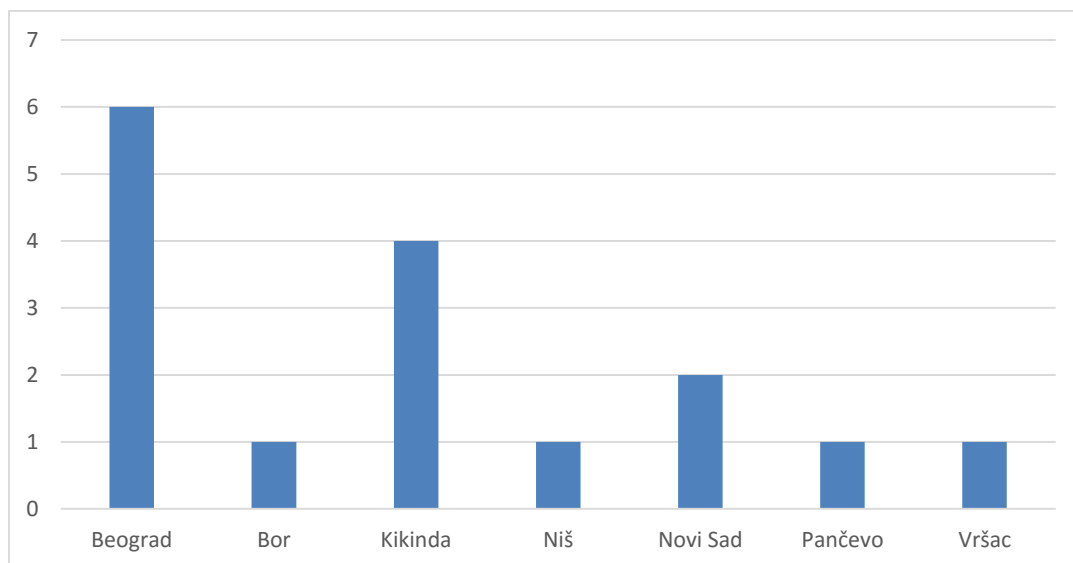


Fig.2.3 Place of residence for enrollment of students



This program was organized in summer semester of 2017/2018 school year. Program duration was one semester and 30ECTS. Five courses were organized:

- Web Design (6 ECTS),
- Standard User Interfaces (6 ECTS),
- Object Programming (6 ECTS),
- Internet Programming (6 ECTS), and
- Visual Programming Techniques (6 ECTS).

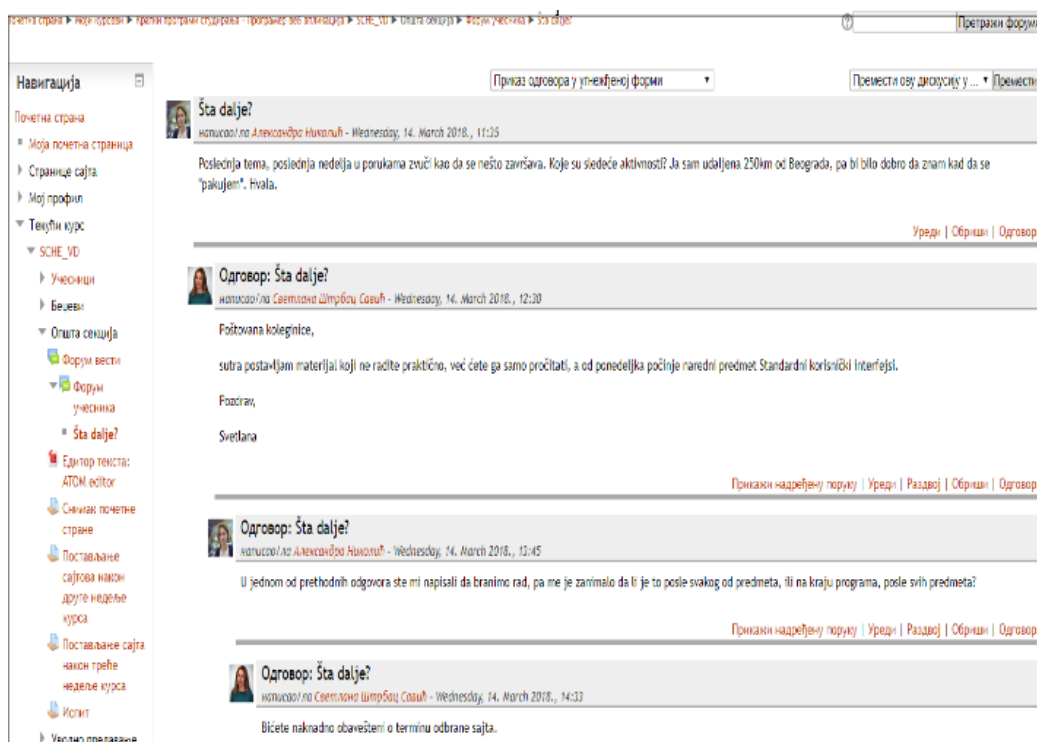
The goal of this program is to prepare students step by step to develop web application starting with creations of static web sites, then making dynamic websites. Course Object Programming serves as an introduction for more advanced courses. In course Internet programming students develop complete web applications using Java technologies. The course Visual Programming Techniques trains students to use Microsoft tools to create web applications.



*Fig.2.4 Introductory workshop*

The program was organized so the courses were sequential. First course was Web Design that does not require any special previous knowledge. Then Standard User Interfaces, Object Programming, Internet Programming and Visual Programming Techniques in given order because student had to master the knowledge of previous course to follow next course. Every

course had the same dynamics. Four days in the week teachers posted learning materials on Moodle platform with an explanation of what students are expected to master in that lesson or in which order to use the material if they were placing more files in the one lesson. Friday was reserved for consultations both electronic and consultation in School. Of course every day students could communicate with teachers or other participants via private messages or forums (Fig. 2.5). Every week students had assignments which they had to complete during the weekend. Those assignments were web applications where student applied knowledge acquired in lessons from the previous week.



*Fig.2.5 Example of online discussion via forum of participants*

All the courses were held online, only first workshop was organized at the School. This workshop has been organized before the program started. Students were informed of the organization of courses, and they got their accounts on both Moodle and Odoo platform and they got a brief training of using of both platforms. They were offered to attend to workshops or consultation in School but since most of them work and some of them are not from Belgrade we had no such demands.

---


### 3. Technical realization of the program



One of the prerequisites for the realization of the program was the choice of Learning Management System (LMS) to be used. Within the framework of the project LMS Odoo has been developed and installed on School server, but it was not completely finished and adjusted to needs of teachers and student until the beginning of the program. For this reason, LMS Moodle was used, although all the learning materials are also posted on Odoo LMS. LMS Moodle has been and still is used in our school since the beginning of the school year 2007/8, when school had provided Learning Management System (LMS) server and opened its website at LMS Moodle. Since that year, the school has been continuously working on the administration and updating of this site. LMS Moodle is used on the program for regular lessons, exercises, consultations and assessment test over the Internet. For more comprehensive audio-video teaching materials, LMS Moodle system allows links to YouTube and other pre-reserved addresses on the Internet, with the previously developed and set audio-video lessons / instructions for exercises. Moodle system tools also have integration with blog tools, current social networks and other Web tools, which are given to students for working on their homework and seminar papers. In addition to its built-in and integrated Web tools and other multimedia content, Moodle system contains a database of students, teachers, classes of objects, their topics, activities and resources, and its user Web portal.

On the first workshop students were trained to use LMS Moodle and Odoo, and they all got their accounts on both platforms. One of the advantages of using Moodle was that some students were already familiar with using Moodle. All the students received their accounts, and all the necessary information about the organization of the teaching and exams was provided on that occasion.

The attending students signed on the attendance list Fig 3.1. Not all of the students were present on the workshop some of them couldn't come, so we send them informations about the program and their accounts on Moodle and ODoo platform by email.

It has already been mentioned that for the implementation of the teaching and communication program Moodle was used because Odoo platform was not yet adjusted to the requirements in the moment when the program started.

 **ВИСОКА ШКОЛА ЕЛЕКТРОТЕХНИКЕ  
И РАЧУНАРСТВА СТРУКОВНИХ  
СТУДИЈА**  
Војводе Степе 283  
Београд

 **PT&SCHE**  
Funded by the  
Erasmus+ Programme  
of the European Union 

Евиденција о преузимању бесплатног примерка  
**Веб дизајн – приручник за лабораторијске вежбе**  
Др Светлана Штрбац-Савић, Нада Сталетић, Александар Симоновић,  
Бранислав Меанџија  
ИСБН 978-86-7982-272-7  
Полазника кратког програма студија – Програмер веб апликација

РБ.	Име и презиме	Потпис
1.	Вера Еркић	
2.	Загорка Пастор	<i>Загорка Пастор</i>
3.	Радица Александров	<i>Радица Александров</i>
4.	Срђан Божовић	<i>Срђан Божовић</i>
5.	Милан Његомир	<i>Милан Његомир</i>
6.	Данијела Крмар Марић	<i>Данијела Крмар Марић</i>
7.	Славиша Симоновић	<i>Славиша Симоновић</i>
8.	Марина Таков	<i>Марина Таков</i>
9.	Реља Ђурчин	<i>Реља Ђурчин</i>
10.	Дејан Симоновић	<i>Дејан Симоновић</i>
11.	Пастор Арпад	<i>Пастор Арпад</i>
12.	Ненад Петровић	<i>Ненад Петровић</i>
13.	Небојша Ранковић	<i>Небојша Ранковић</i>
14.	Невенка Карић	<i>Невенка Карић</i>
15.	Александра Николић	<i>Александра Николић</i>
16.	Јасмина Алмаши	<i>Јасмина Алмаши</i>
17.	Предраг Шеварика	<i>Предраг Шеварика</i>
18.	Александар Младеновић	<i>Александар Младеновић</i>
19.	Немања Милованић	<i>Немања Милованић</i>
20.	Маја Ђурђевић	<i>Маја Ђурђевић</i>

У Београду,  
19.2.2018.

Fig. 3.1 List of present student on the first workshop on the program

For every course on the program new course was opened in LMS Moodle and Odoo platfrm. In Fig 3.2 the structure of the course Web Design is visible.

As it was mentioned earlier in the preport new materials were created for every lesson of all five courses. The template of developed learning material was the same for all courses. All the lessons have as least one pdf document in a specific template, and some lessons have other additional learning materials: demonstrations, examples etc.

The structure of the course are available on:

<http://sche.viser.edu.rs> (Odoo)

<http://lectio.viser.edu.rs/moodle/course/index.php?categoryid=44> (Moodle)

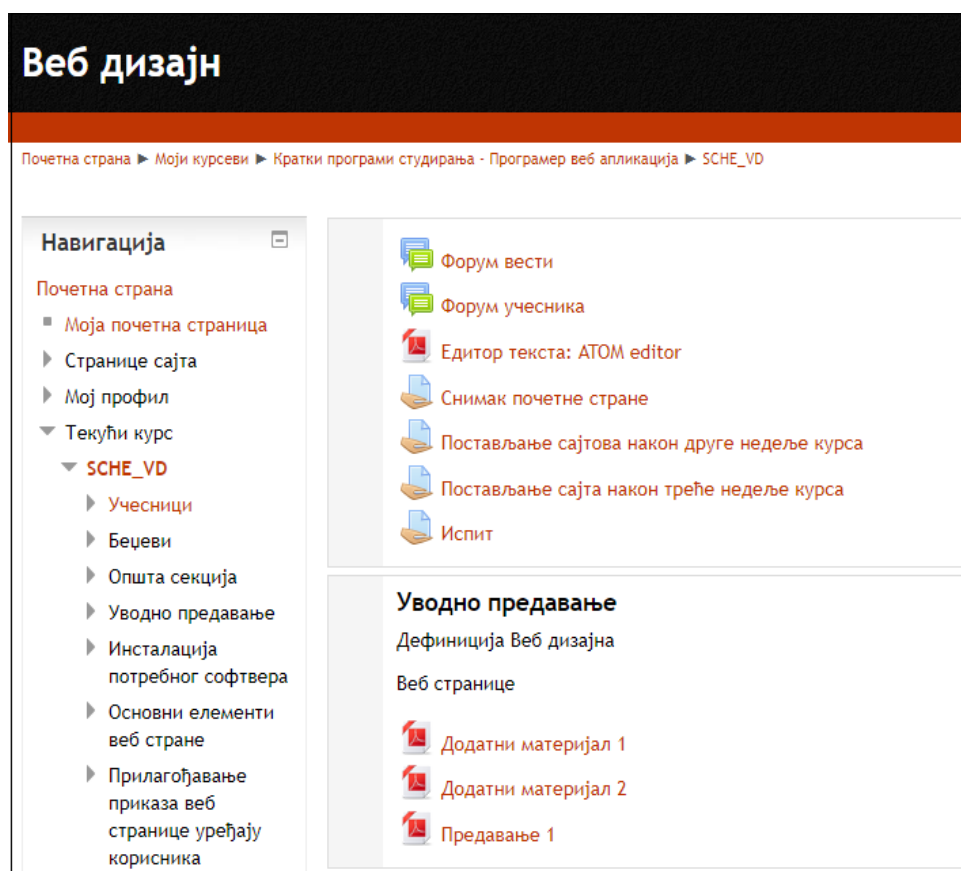


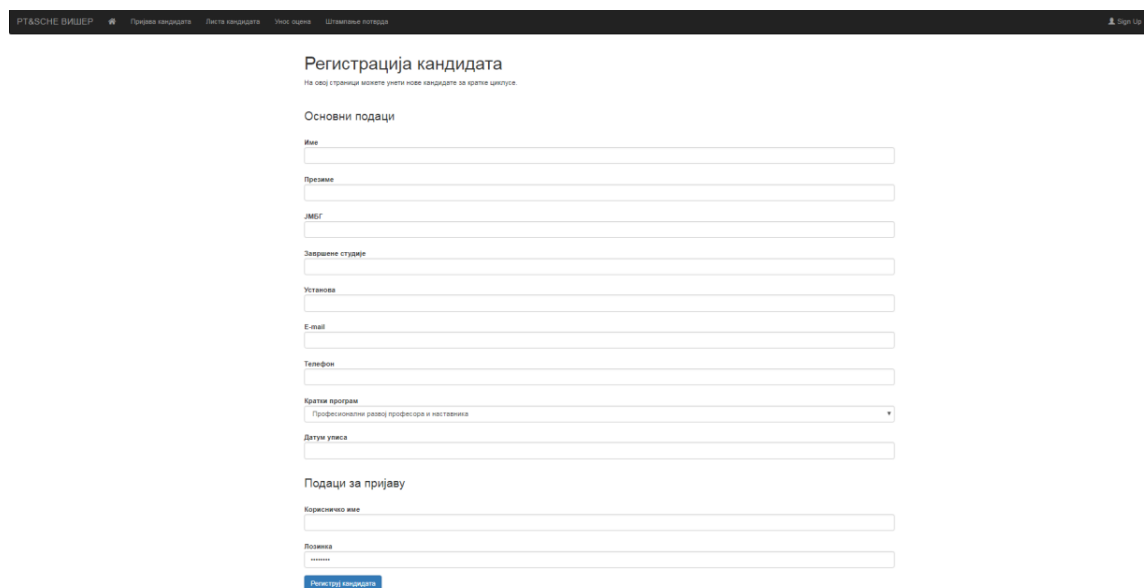
Fig.3.2 Screen shot of course Web design on LMS Moodle

<http://lectio.viser.edu.rs/moodle/course/view.php?id=353>

## 4. Administration of short cycle programs

All necessary documentation for students registration was collected at the time of enrollment and in additional terms envisaged for the submission of documents. After collecting paper documents, an electronic database was created exclusively for students enrolled to F2F and short online cycle programmes. For each student, the following data is entered:

1. first name,
2. last name,
3. unique personal number,
4. completed studies,
5. the institution on which student works,
6. phone number,
7. mail address,
8. enrolled course,
9. date of enrollment to course,
10. user name and
11. password.



The screenshot shows a web browser window with the PT&SCHE logo in the top left corner. The page title is "Регистрација кандидата" (Candidate Registration). Below the title, there is a subtitle: "На овој страници можете унети нове кандидате за кратке циклусе." (On this page, you can enter new candidates for short cycles). The form is divided into two main sections: "Основни подаци" (Basic data) and "Подаци за пријаву" (Data for login). The "Основни подаци" section includes fields for: Имя (Name), Презиме (Surname), ЈМБГ (JMBG), Завршене студије (Completed studies), Установа (Institution), Е-маил (E-mail), Телефон (Phone), Кратки програм (Short program) with a dropdown menu showing "Професионални развој професора и наставника" (Professional development of professors and teachers), and Датум уписа (Date of enrollment). The "Подаци за пријаву" section includes fields for Корисничко име (Username) and Лоиника (Password). A blue button labeled "Региструјте кандидата" (Register candidate) is located at the bottom of the form.

*Fig.4.1 Registration of candidates*



PT&SCHE ВИСЕР [Преглед кандидата](#) [Листа кандидата](#) [Унос оцена](#) [Опште информације](#) [Sign up](#) [Login](#)

### Листа унетих кандидата

У оквиру ове секције можете видети информације о унетим кандидатима

#	Име	Презиме	JMBG	Телефон	Е-пошта	Програм
1	Александар	Петровић	0401988710103	0644276816	ashaleq@gmail.com	Професионални развој професора и наставника
2	Александар	Јандрић	2207954715316	0638111853	ankaleq@gmail.com	Професионални развој професора и наставника
3	Александар	Хаџибековић	2608070794412	0641748909	hazibegovicaleq@gmail.com	Професионални развој професора и наставника
4	Басиљана	Живковић	1801986798419	0641283323	nbolci@mts.rs	Професионални развој професора и наставника
5	Босиљка	Илић	1305967732059	0642259565	boskic24@gmail.com	Професионални развој професора и наставника
6	Босиљка	Богородић	2001976710219	0642259576	boskic24@viver.edu.rs	Професионални развој професора и наставника
7	Василија	Стојићковић	2412975735348	0634449436	vasilijakovic@gmail.com	Професионални развој професора и наставника
8	Владимир	Кучић	1803988710201	0643024905	vg.kucic@gmail.com	Професионални развој професора и наставника
9	Владан	Савић	2807971710304	0641207601	vslj.kavic71@gmail.com	Професионални развој професора и наставника
10	Владислав	Влашић	0302966710147	0649724490	vslav.vlasic@gmail.com	Професионални развој професора и наставника
11	Горан	Кривачевић	1910986742043	0634443362	goran.krivacevic@gmail.com	Професионални развој професора и наставника
12	Гордана	Станојевић	0307975715041	064 8006333	gocstanjic@gmail.com	Професионални развој професора и наставника
13	Данијела	Атанацковић	2211974797613	0604441633	danatana@hotmail.com	Професионални развој професора и наставника
14	Дарин	Арсенић	1209862752411	0638476536	d.arsenic@redpost.edu.rs	Професионални развој професора и наставника
15	Дарин	Пичићевић	2008970710065	0637717476	konkuzaprososmah@gmail.com	Професионални развој професора и наставника
16	Дарин	Бенковић	2801975730354	0649942610	dajen.barkovic@gmail.com	Професионални развој професора и наставника
17	Дарина	Стефановић	3006989715231	0669603453	djanastefanovic09@gmail.com	Професионални развој професора и наставника
18	Добрица	Дедић	1209869595912	0638326120	dobriledic@gmail.com	Професионални развој професора и наставника
19	Драган	Кречић	0707975710293	0649698718	kracic7@gmail.com	Професионални развој професора и наставника
20	Драган	Турковић	0402961371505		draganturkic@gmail.com	Професионални развој професора и наставника
21	Драгана	Поповић	2303978919731	0643702476	d.papovic16@gmail.com	Професионални развој професора и наставника
22	Драгана	Веселић	1807989715286	06431986415	badnecaj16@gmail.com	Професионални развој професора и наставника
23	Драгиљуб	Маријановић	2002891770970	0638162568	marjanovic.dragiljub@gmail.com	Професионални развој професора и наставника
24	Душан	Губић	1404681710326	0638447324	duzangetic11@gmail.com	Професионални развој професора и наставника
25	Илија	Клић	1002967341121	0643674347	zejcklija@yahoo.com	Професионални развој професора и наставника
26	Зоран	Карадојевић	1707973710109	0643105090	zoranadonovic@gmail.com	Професионални развој професора и наставника
27	Зоран	Тошић	2403980710208	0633076758	atommy011@yahoo.com	Професионални развој професора и наставника
28	Иван	Добричанин	1607975710265	0653399605	ivan_dobricanin@yahoo.com	Професионални развој професора и наставника
29	Ивана	Селенић	02019897777025	0644479213	ivanseleovic13@hotmail.com	Професионални развој професора и наставника

Fig.4.2 Report from application for registration of enrolled candidates

This electronic database beside student data also contains students' marks and data for certificates.

PT&SCHE ВИСЕР [Преглед кандидата](#) [Листа кандидата](#) [Унос оцена](#) [Опште информације](#) [Sign up](#) [Login](#)

### Уношење оцена кандидатима

На овој страници можете унети оцене кандидата

Испитни рок

Програм кратких студија

Предмет

Датум испита

[Преглед кандидата](#)

Fig.4.3 Screenshot of form for entering data on exams on short cycle programs

## 5. Learning materials

Learning materials for online short cycle program Web application programmer was free of charge for the students.

Two types of learning learning materials were created:


1. Printed materials, and
2. Online learning materials available on Moodle and Odoo Learning Platform (<http://sche.viser.edu.rs>)



For Web designe course printed workbook was distributed for free to students.



5.1 Web designe workbook




**ВИСОКА ШКОЛА ЕЛЕКТРОТЕХНИКЕ  
И РАЧУНАРСТВА СТРУКОВНИХ  
СТУДИЈА**  
Војводе Степе 283  
Београд


 Funded by the  
Erasmus+ Programme  
of the European Union
 

Евиденција о присуству почетној радионици кратког програма студирања –  
Програмер веб апликација  
24.2.2018. године

РБ.	Име и презиме	Потпис
1.	Вера Еркић	
2.	Загорка Пастор	
3.	Радица Александров	<i>Радица Александров</i>
4.	Срђан Божовић	<i>Срђан Божовић</i>
5.	Милан Његомир	<i>Милан Његомир</i>
6.	Данијела Крмар Марић	<i>Данијела Крмар Марић</i>
7.	Славиша Симовић	<i>Славиша Симовић</i>
8.	Марина Таков	<i>Марина Таков</i>
9.	Реља Ђурчин	<i>Реља Ђурчин</i>
10.	Дејан Симоновић	<i>Дејан Симоновић</i>
11.	Пастор Арпад	<i>Пастор Арпад</i>
12.	Ненад Петровић	<i>Ненад Петровић</i>
13.	Небојша Ранковић	<i>Небојша Ранковић</i>
14.	Невенка Карић	
15.	Александра Николић	
16.	Јасмина Алмаши	<i>Јасмина Алмаши</i>
17.	Предраг Шеварика	<i>Предраг Шеварика</i>
18.	Александар Младеновић	<i>Александар Младеновић</i>
19.	Немања Миловановић	
20.	Маја Ђурђевић	<i>Маја Ђурђевић</i>
21.		

Потпис предметног наставника

\_\_\_\_\_

Fig. 5.2 Evidence of students who took Web Designe workbook

On Moodle Learning Platform and Odoo for every course topic of short cycle programs Web application programmer the students have access to learning materials. New learning materials were developed for each lesson of each course in the same template. Some lessons had additional learning materials.

Prepared materials along with communication and students tasks are available on:

<http://sche.viser.edu.rs>

<http://lectio.viser.edu.rs/moodle/course/index.php?categoryid=44>

## Објектно оријентисано пројектовање

Почетна страна ▶ Моји курсеви ▶ Кратки програми студирања - Програмер веб апликација ▶ OOP-SCHE

Навигација

- Почетна страна
- Моја почетна страница
- Странице сајта
- Мој профил
- Текући курс
  - OOP-SCHE**
    - Учесници
    - Беџеви
    - Општа секција
    - Прва недеља
    - Друга недеља
    - Трећа недеља
    - Тема 4
    - Тема 5
    - Тема 6
    - Тема 7
    - Тема 8
    - Тема 9
    - Тема 10
- Моји курсеви

Администрација

- Администрација курса
  - Укључи уређивање
  - Уреди подешавања
  - Корисници
  - Филтери
  - Извештаји

Форум вести

Форум учесника

### Прва недеља

- I дан - Објектно оријентисано пројектовање, програмски језик Јава
- II дан - Типови и оператори у Јави
- III дан - Наредбе циклуса и скока
- IV дан - Класе
- V дан - Predaja zadatka prve nedelje

### Друга недеља

- I дан - Пакети и стандардне класе
- II дан - Стандардне класе
- III дан - Омотачи простих типова и набројиви тип
- III дан - Увод у наслеђивање
- IV дан - Наслеђивање, полиморфизам и апстрактне класе
- V дан - Predaja zadatka druge nedelje

### Трећа недеља

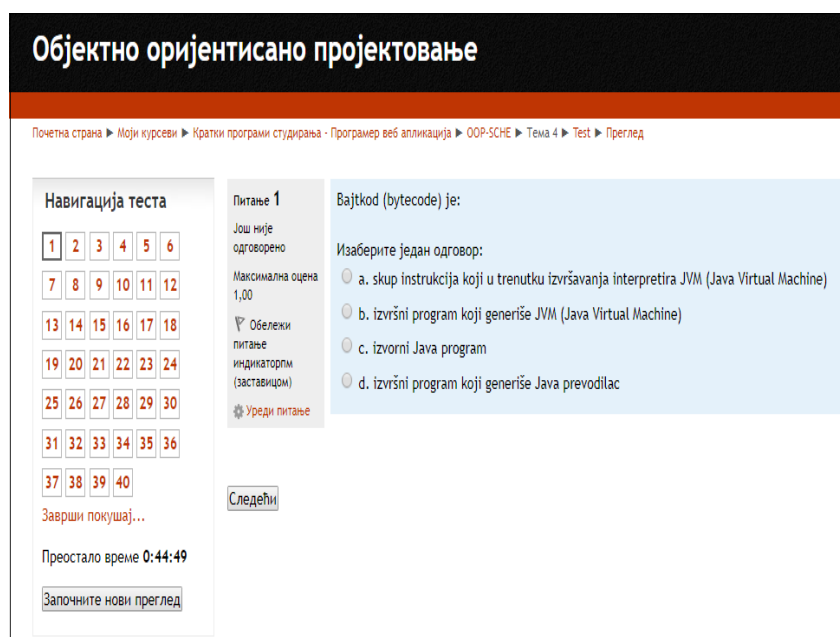
- I дан - Интерфејси
- II дан - Колекције
- III дан - Изузеци
- IV дан - Улаз/Израз
- V дан - Predaja zadatka trece nedelje

Fig.5.3 Online learning materials

## 6. Exams and knowledge tests

Every course of the program had assignments every week. Those assignments were practical mostly, depending on the subject, creation of web applications. Assignments were reviewed and evaluated by teachers. Students got comments on their application, and recommendations for their improvement. Of course students could ask teachers or other students for help on some issues while they worked on the assignment. During the course students got points, but they had to take exam for getting a grade of the subject. Every subject on the program had different number of points that students could get during the realization of the course. Teachers insisted that student respect deadlines because as it was previously mentioned it would be very difficult to keep up with next demands on the same course or the following course. Of course some flexibility existed. Because almost all the students of the program are employed.

Some courses included online tests. On Fig.6.1 is one example of online test on Object programming course. Exams for each course were held at School and each student had to come to School and do the exam on every course of the program. All the exams were practical demonstrations of knowledge through creation of appropriate web applications and a discussion with the professor.



**Објектно оријентисано пројектовање**

Почетна страна ► Моји курсеви ► Кратки програми студирања ► Програмер веб апликација ► OOP-SCHE ► Тема 4 ► Test ► Преглед

**Навигација теста**

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40		

Заврши покушај...

Преостало време 0:44:49

Започните нови преглед

**Питање 1**

Још није одговорено

Максимална оцена 1,00

Обележи питање индикатором (заставицом)

Уреди питање

Следећи

**Важкод (bytecode) је:**

Изаберите један одговор:

- ☐ a. skup instrukcija koji u trenutku izvršavanja interpretira JVM (Java Virtual Machine)
- ☐ b. izvršni program koji generiše JVM (Java Virtual Machine)
- ☐ c. izvorni Java program
- ☐ d. izvršni program koji generiše Java prevodilac

Fig.6.1 Test on LSD Moodle on course Object Programming

Students are allowed to take the exams in every examination period. Number of times for student to take an exam is not limited. For students who are not from Belgrade special exam schedule was made so they didn't have to travel to Belgrade more times in one exam period. Of course all students could choose if they want to take exams in regular exam period or in the exclusive term.



Висока школа  
ЕЛЕКТРОТЕХНИКЕ И РАЧУНАРСТВА  
СТРУКОВНИХ СТУДИЈА  
11000 Београд, Војводе Степе 283

Николић Александра  
(презиме и име студента)

Број досијеа \_\_\_\_\_

Студ. програм АВТ АСУВ ЕЛИТЕ ЕПО НЕТ НРТ РТ

Смер АВТ АТ ЕЛИТЕ ЕН ЕПО МЕТ НРТ РТ

Статус Б САФ

### ПРИЈАВА ЗА ИСПИТ

Пријављујем испит из предмета Веб дизајн

Мнемо и  
шифра 171007 (ЕСПБ) 6 код др Светлане Штрбац-Савић

у Септембарском испитном року, школске 20 17 / 20 18 године.

Испит полажем \_\_\_\_\_ пут.

Кандидат Николић Александра је полагао испит из предмета Веб дизајн

Мнемо и  
шифра 171007 (ЕСПБ) 6 и добио оцену 8 (одм.).

Предметни наставник - комисија

У Београду

Дана 13. 9. 2018.

Издавач: Графопак - Аранђеловац

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

Fig.6.2 Paper exams registration

Until this moment nine students have successfully finished the program and they already have certificate of successful completion of the program. Twelve students, including nine students who finished the program, were active during the whole program, and we expect that they will pass the rest of the exams in next exam term. Some of those three students have already passed few exams. One student dropped out on during the second course. Other five students were not constantly active, but they still want to finish the program. Most important is that they are satisfied

with the knowledge they got, but they all think that it was very hard for them to do the assignments every week the whole semester with no break between the courses. Most of them think that the program should last longer because it is very demanding. Students of short cycle programs take exams at the same time as other students of VISER.

Students of online short cycle program have the right to take the exam free at any exam period without registering. Paper registration was prepared for each student in each exam period. Paper registration for each student contains name of student, name of professor, exam period and date of exams, course code and number of ESPB point. Paper registration and list of students was given to professors for each exam. After exams professors return fulfilled paper exam registration (Fig 6.2).

Information on the terms of the exams was available on VISER website and emails were sent to students using Moodle platform information tools.

Fig.6.3 Information on Moodle about the examination schedule

Beside paper documentation all exams marks and data are entered and saved in electronic database fig. 6.3

## Уношење оцене кандидатима

На овој страници можете унети оцене кандидатима

Испитни рок

Јунски испитни рок - 2017/2018

Програм кратких студија

Професионални развој професора и наставника

Предмет

Педогогија

Датум испита

13.07.2018.

[Грижа кандидата](#)

JMBG	Име	Презиме	Није полагао	Удаљен	Није положио	6 - шест	7 - седам	8 - осам	9 - девет	10 - десет
0401960710103	Александар	Петровић	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
2207964715316	Ана	Јанковић	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2620970794412	Анес	Хаџибековић	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1501960795419	Биљана	Живковић	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
1305967730059	Бобан	Њић	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
2001976710219	Бошко	Богданић	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2412975735048	Валентина	Стојићковић	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
1805960710301	Владимир	Кукољ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2607971710304	Војин	Савић	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
0302960710147	Војислав	Влашић	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
1910960740043	Горан	Кривачевић	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
0307975715041	Гордана	Станковић	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
2211974797613	Данијела	Аленићковић	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12059602702411	Дејан	Арсенић	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
2006970710365	Дејан	Пичићевић	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2601975730034	Дејан	Бенковић	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fig.6.3 Screenshot of application for registering students' activities

---

## 7. Survey

During 2018 the survey about short cycle studies was conducted in School of Electrical and Computer Engineering of Applied Studies. In total 83 candidates took the survey. 63 candidates are from Professional development of professors and teachers short cycle studies, 9 from Vehicle diagnostics and 11 from Web application programmer short cycle studies.

### 7.1 Questions in survey

About short cycle studies in VISER

1. Which short cycle studies did you enrolled:
  - a) **Professional development of professors and teachers**
  - b) **Vehicle diagnostics**
  - c) **Web application programmer**
2. Mark the quality of lectures held on short cycle studies:  
**None            1            2            3            4            5**
3. Mark the consultation and relationship professor, student of short cycle studies:  
**None            1            2            3            4            5**
4. Mark work conditions on short cycle studies:  
**None            1            2            3            4            5**
5. Mark learning materials on short cycle studies:  
**None            1            2            3            4            5**
6. In your opinion are short cycle studies adequate type of professional development:  
**None            Yes    No**
7. Mark organization of short cycle studies:  
**None            1            2            3            4            5**



---

8. Whether teaching has fulfilled your expectations:

**None            1            2            3            4            5**

9. Knowledge gained from short cycle studies while by useful in future work:

**None            1            2            3            4            5**

10. Remarks and suggestions about this short cycle studies:

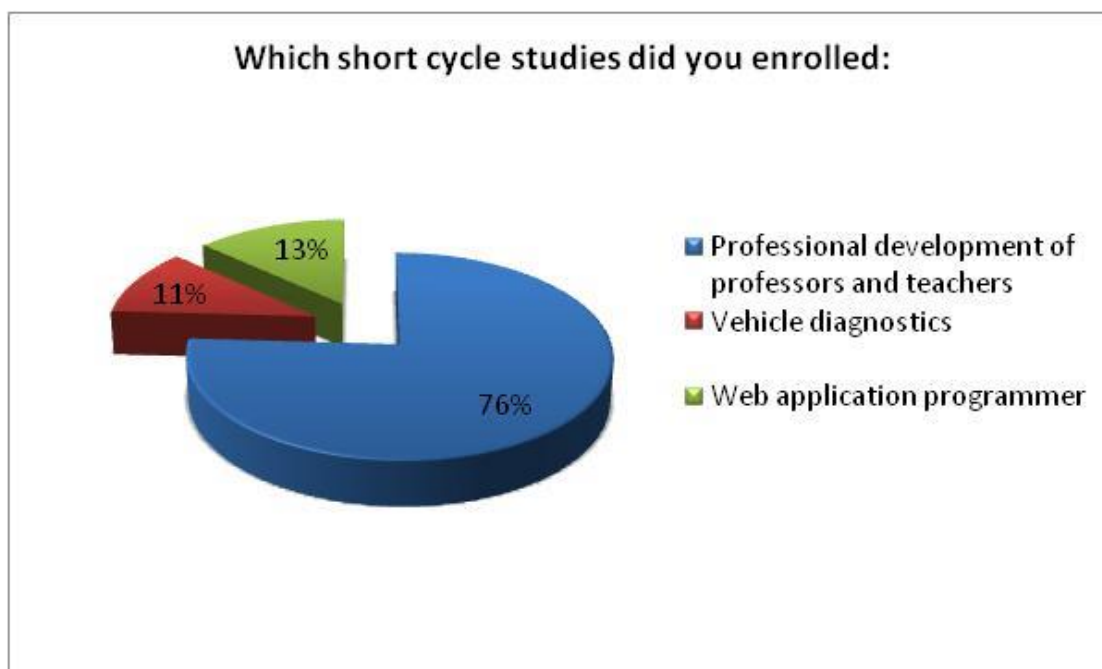
--



## 7.2 Survey about short cycle studies in VISER – Web Application Programmer

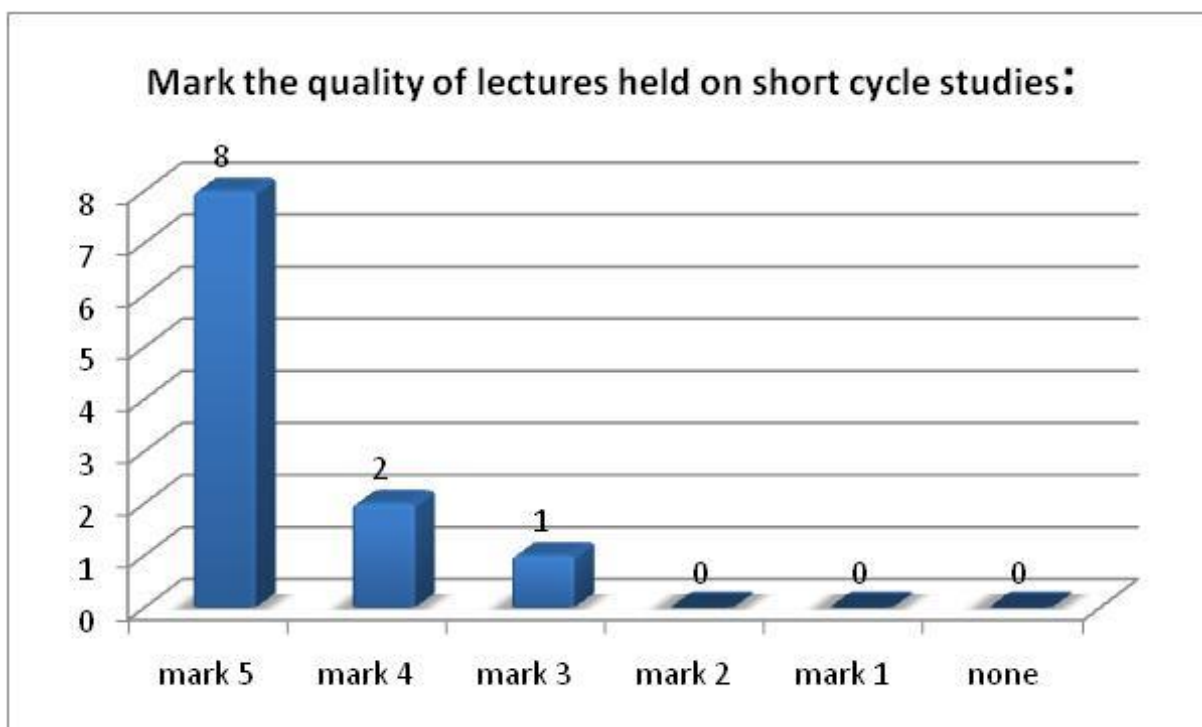
1. Which short cycle studies did you enrolled

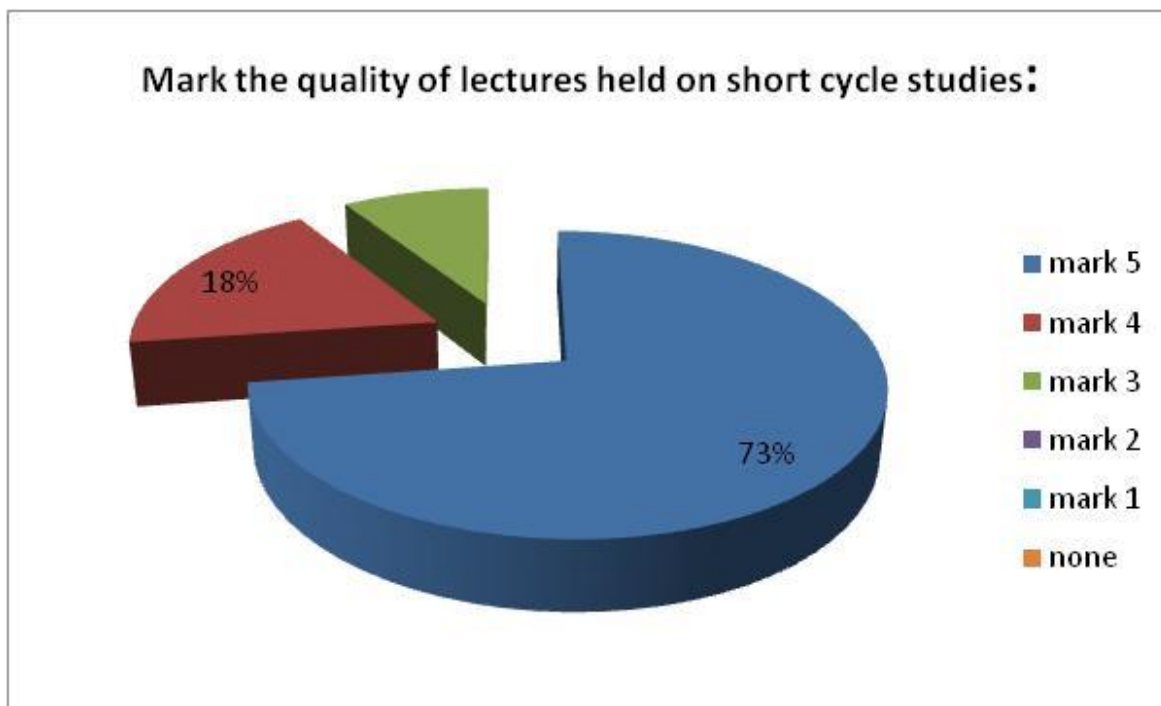
	Number of answers
Professional development of professors and teachers	63
Vehicle diagnostics	9
Web application programmer	11



## 2. Mark the quality of lectures held on short cycle studies

Mark	Number of answers
mark 5	8
mark 4	2
mark 3	1
mark 2	0
mark 1	0
none	0
average mark:	<b>4.64</b>

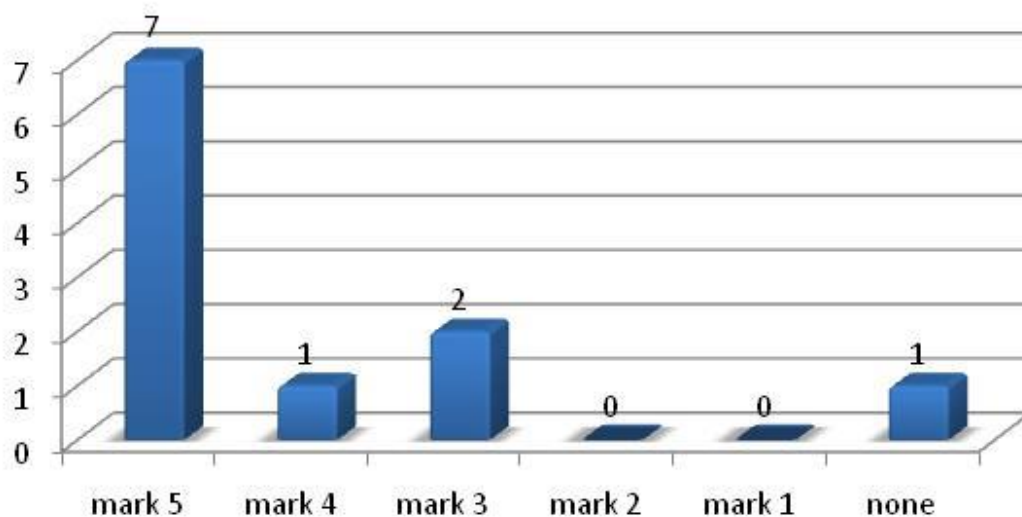




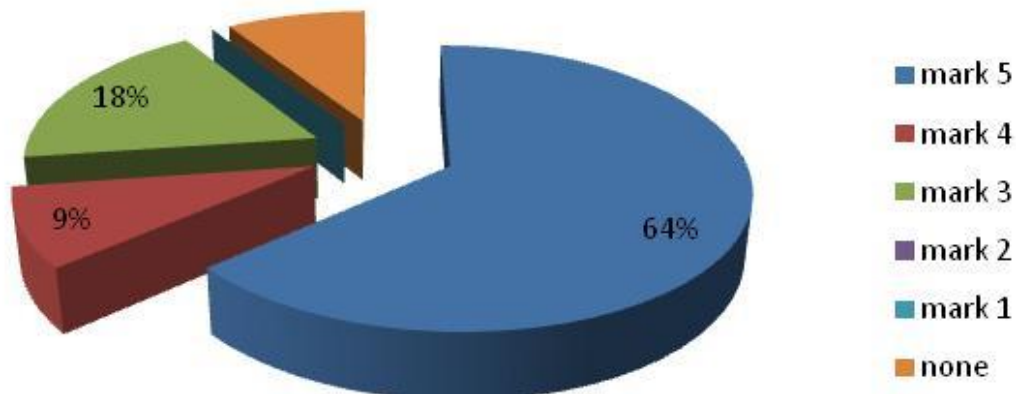
3. Mark the consultation and relationship professor, student of short cycle studies

Mark	Number of answers
mark 5	7
mark 4	1
mark 3	2
mark 2	0
mark 1	0
none	1
<b>average mark:</b>	<b>4.67</b>

**Mark the consultation and relationship professor,  
student of short cycle studies:**

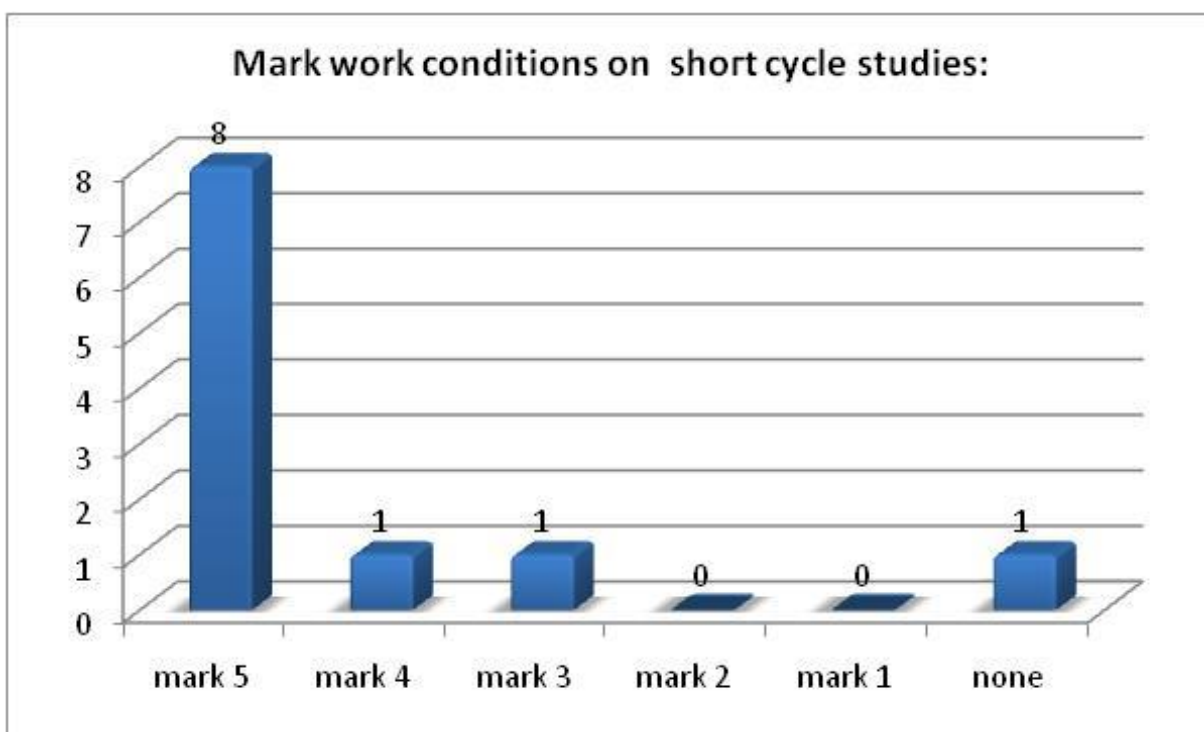


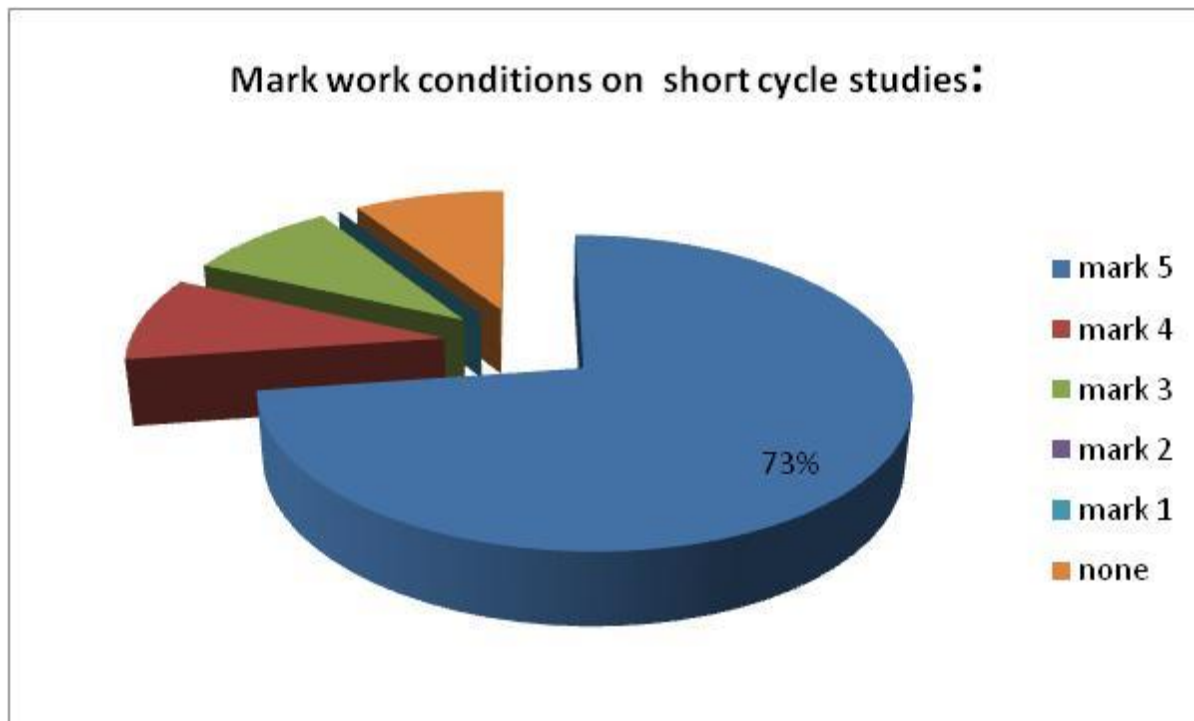
**Mark the consultation and relationship professor,  
student of short cycle studies:**



#### 4. Mark work conditions on short cycle studies

Mark	Number of answers
mark 5	8
mark 4	1
mark 3	1
mark 2	0
mark 1	0
none	1
<b>average mark:</b>	<b>4.70</b>

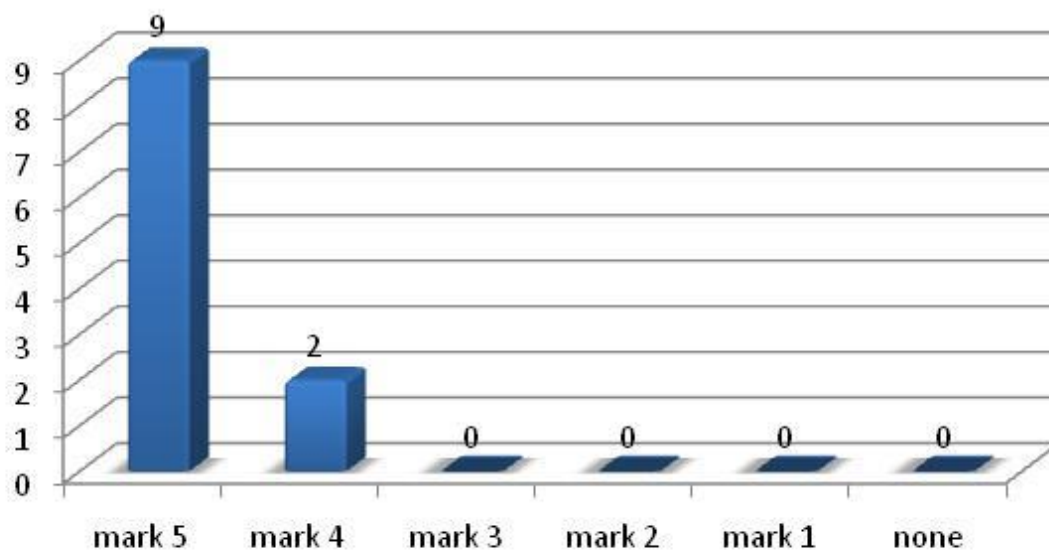




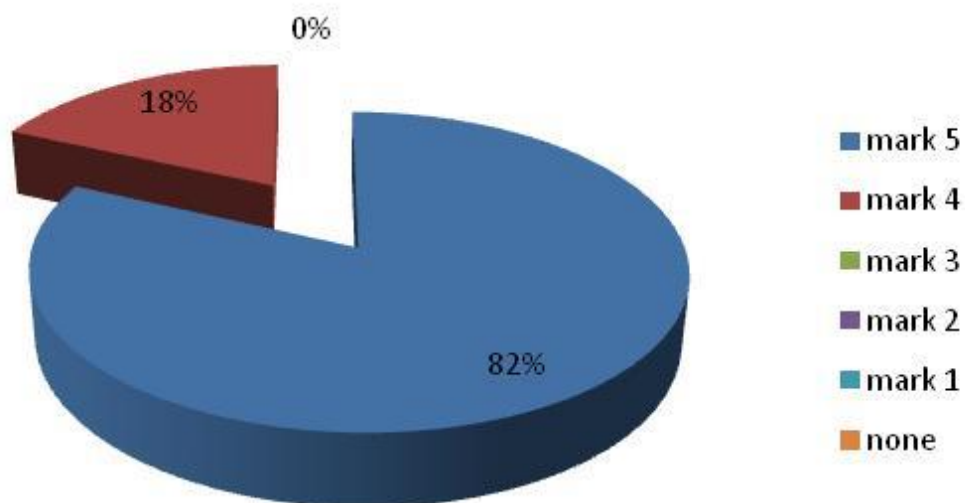
## 5. Mark learning materials on short cycle studies

Mark	Number of answers
mark 5	9
mark 4	2
mark 3	0
mark 2	0
mark 1	0
none	0
<b>average mark:</b>	<b>4.82</b>

**Mark learning materials on short cycle studies:**

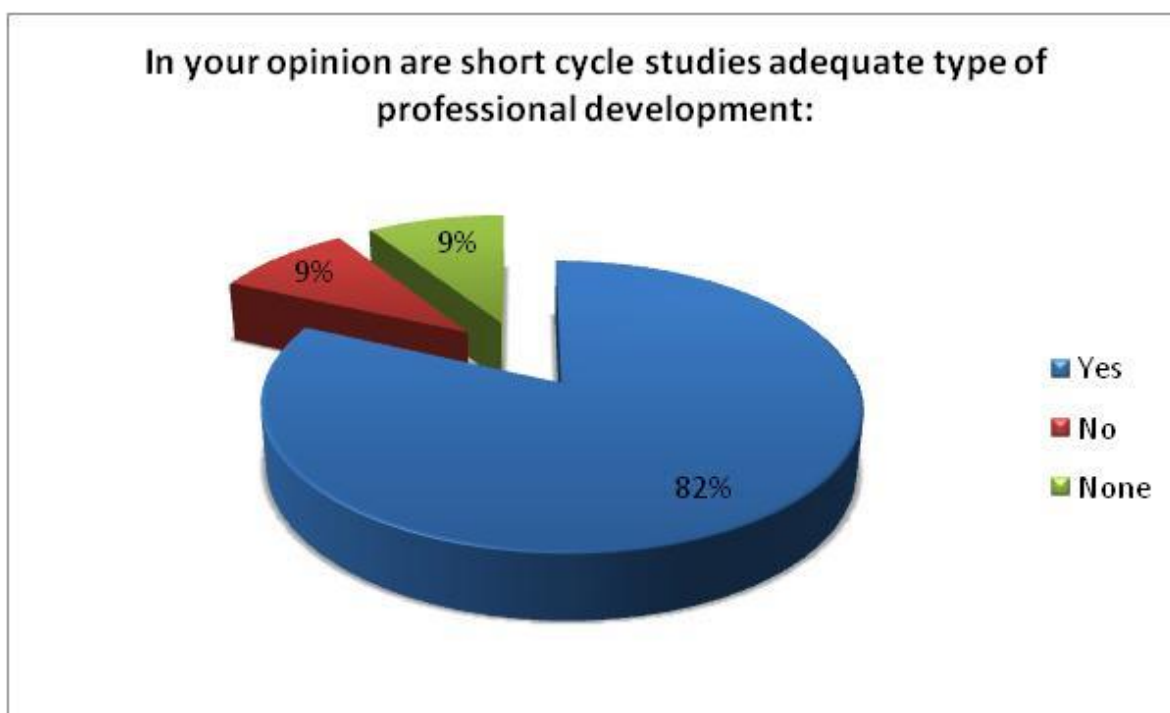


**Mark learning materials on short cycle studies:**



6. In your opinion are short cycle studies adequate type of professional development

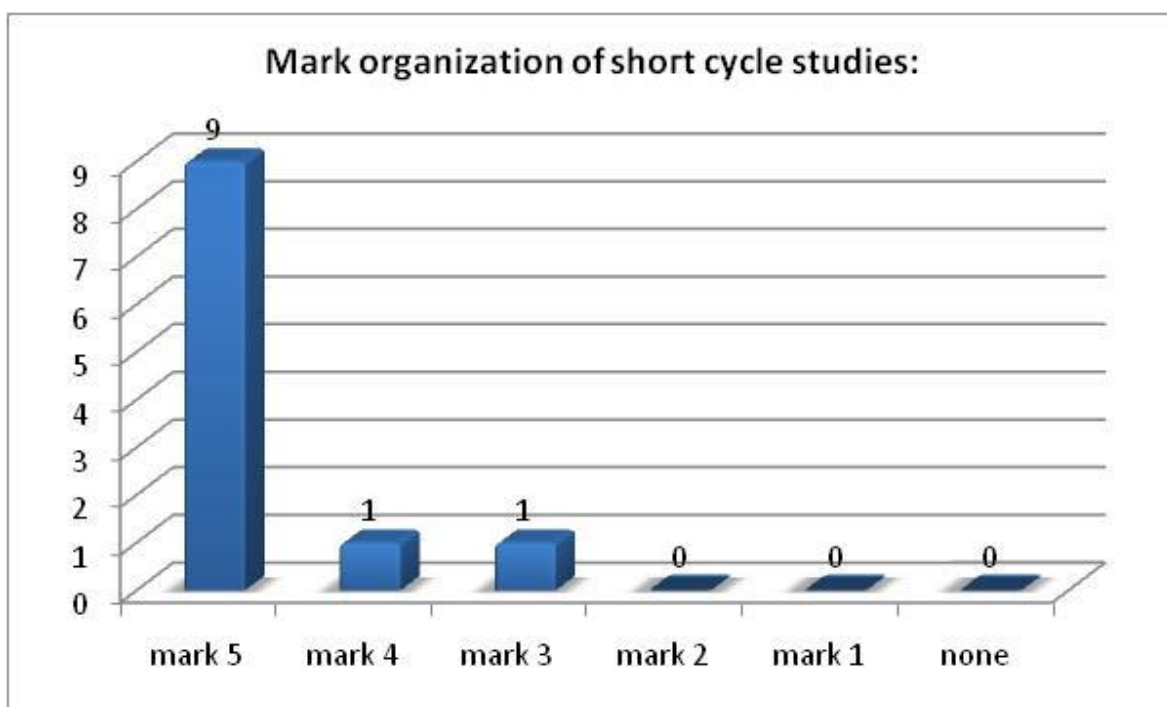
Mark	Number of answers
Yes	9
No	1
None	1



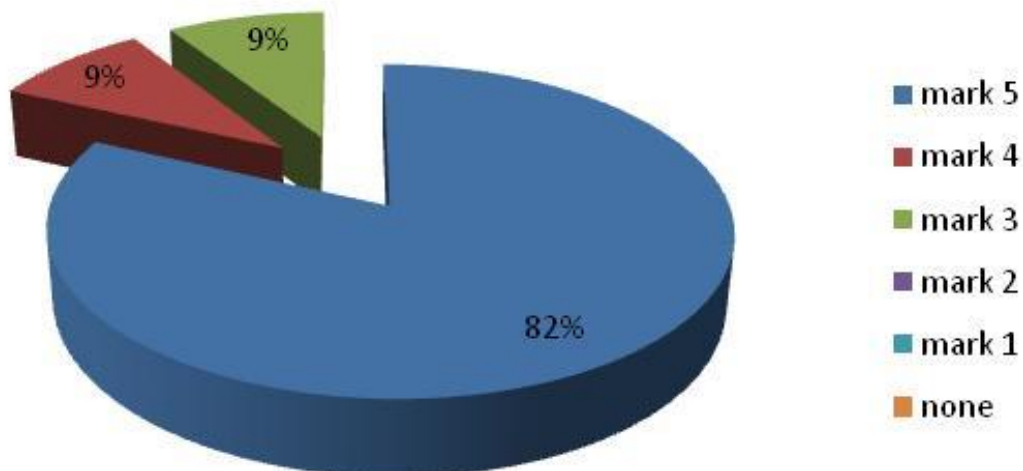


## 7. Mark organization of short cycle studies

Mark	Number of answers
mark 5	9
mark 4	1
mark 3	1
mark 2	0
mark 1	0
none	0
<b>average mark:</b>	<b>4.73</b>

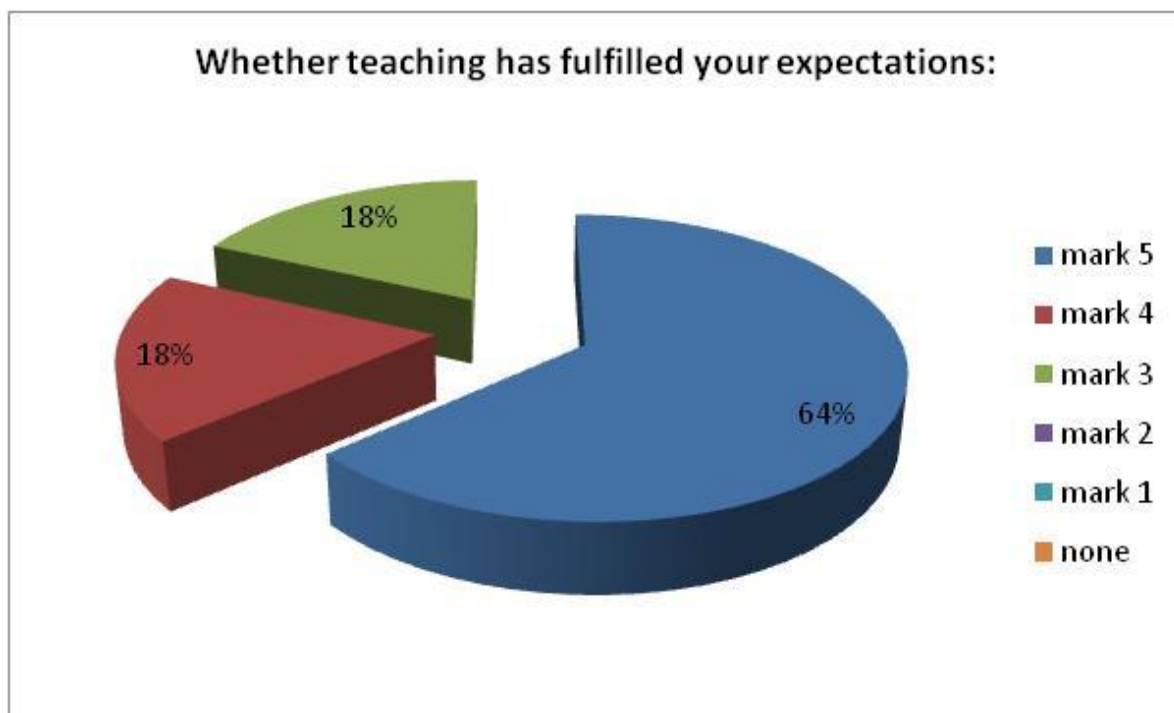
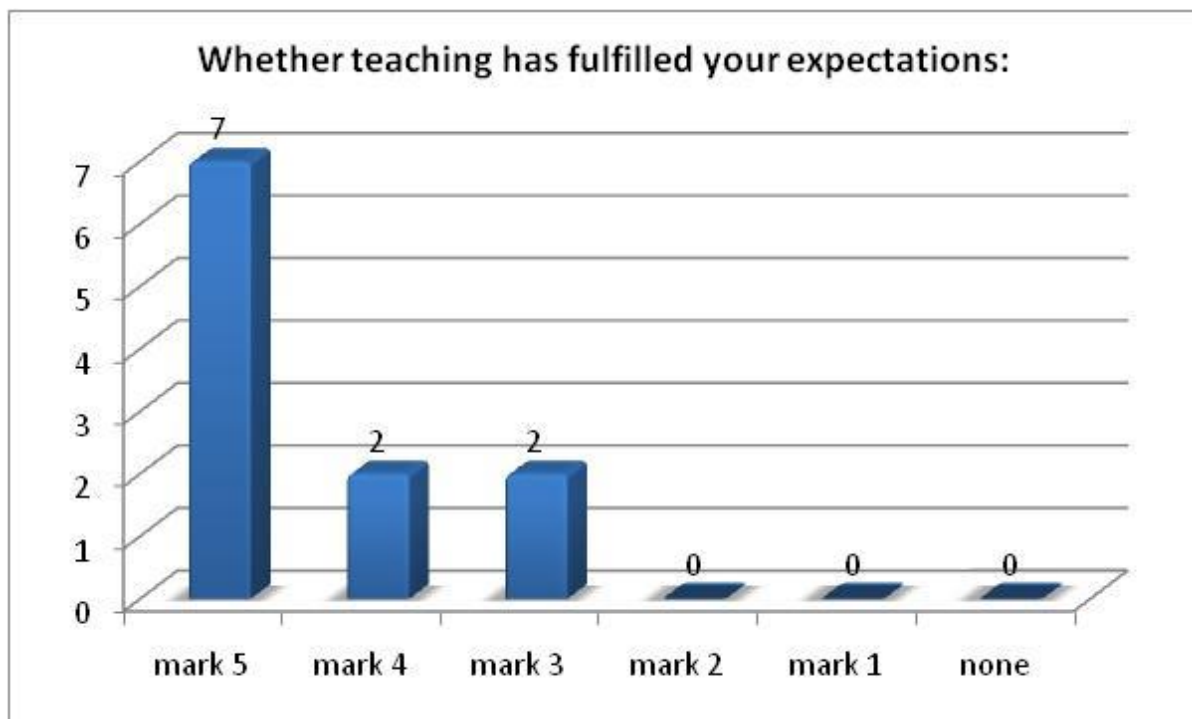


**Mark organization of short cycle studies:**



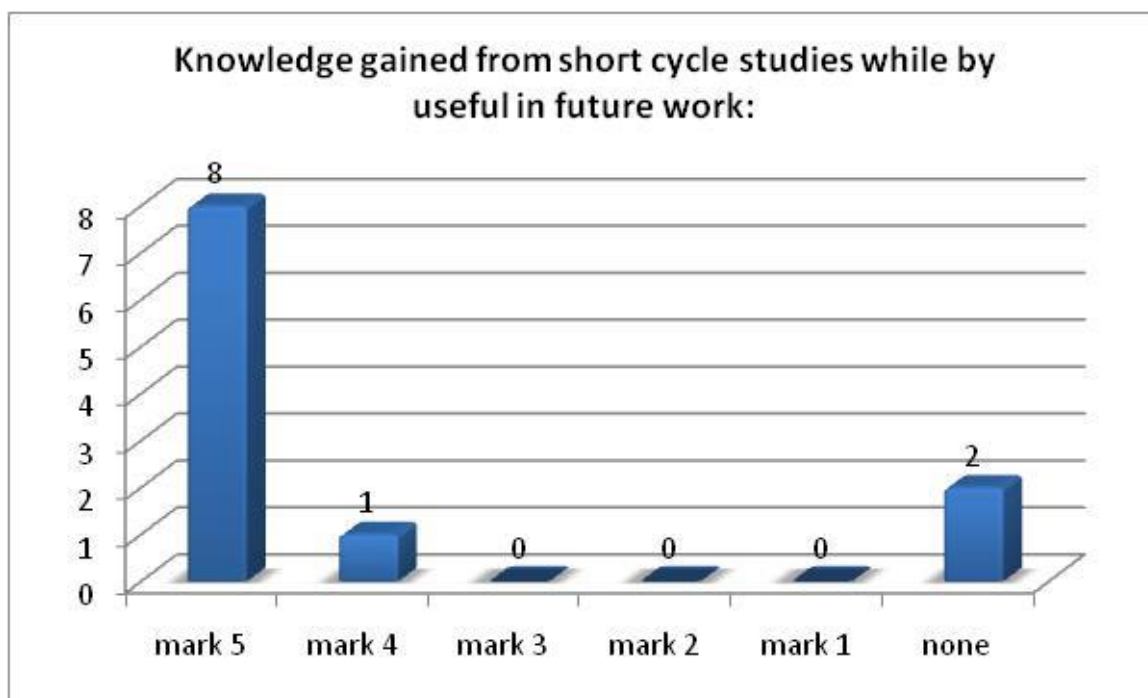
8. Whether teaching has fulfilled your expectations

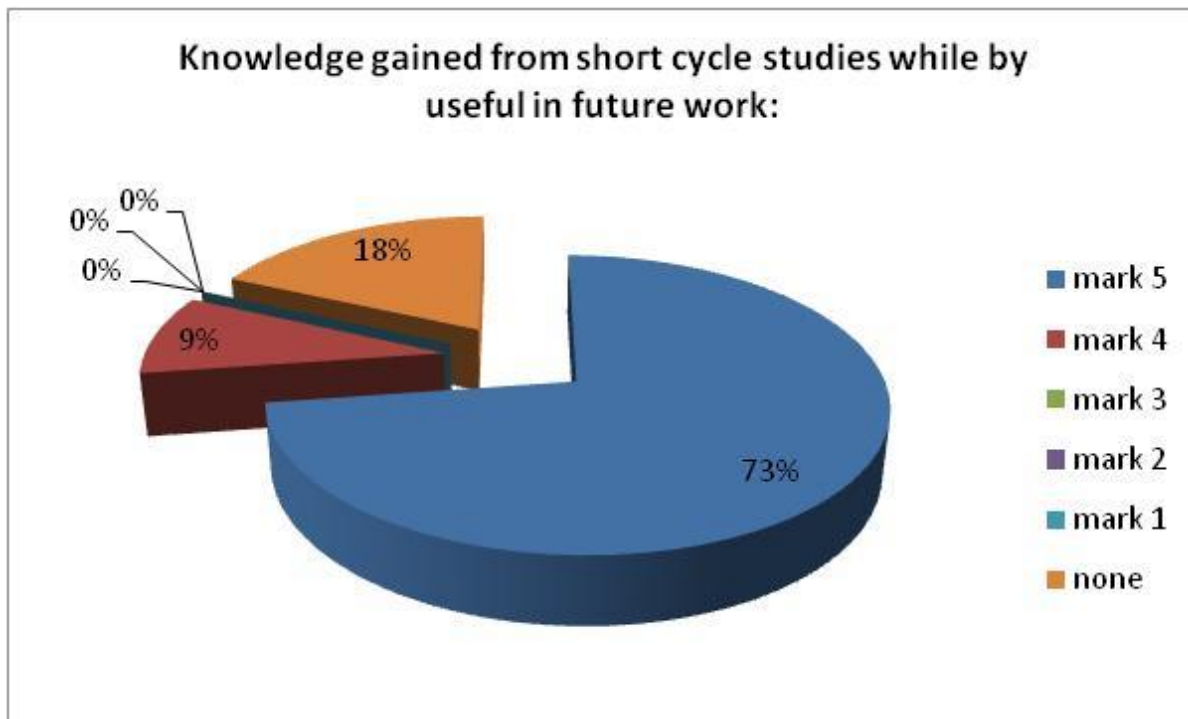
Mark	Number of answers
mark 5	7
mark 4	2
mark 3	2
mark 2	0
mark 1	0
none	0
<b>average mark:</b>	<b>4.45</b>



## 9. Knowledge gained from short cycle studies while by useful in future work

Mark	Number of answers
mark 5	8
mark 4	1
mark 3	0
mark 2	0
mark 1	0
none	2
<b>average mark:</b>	<b>4.89</b>



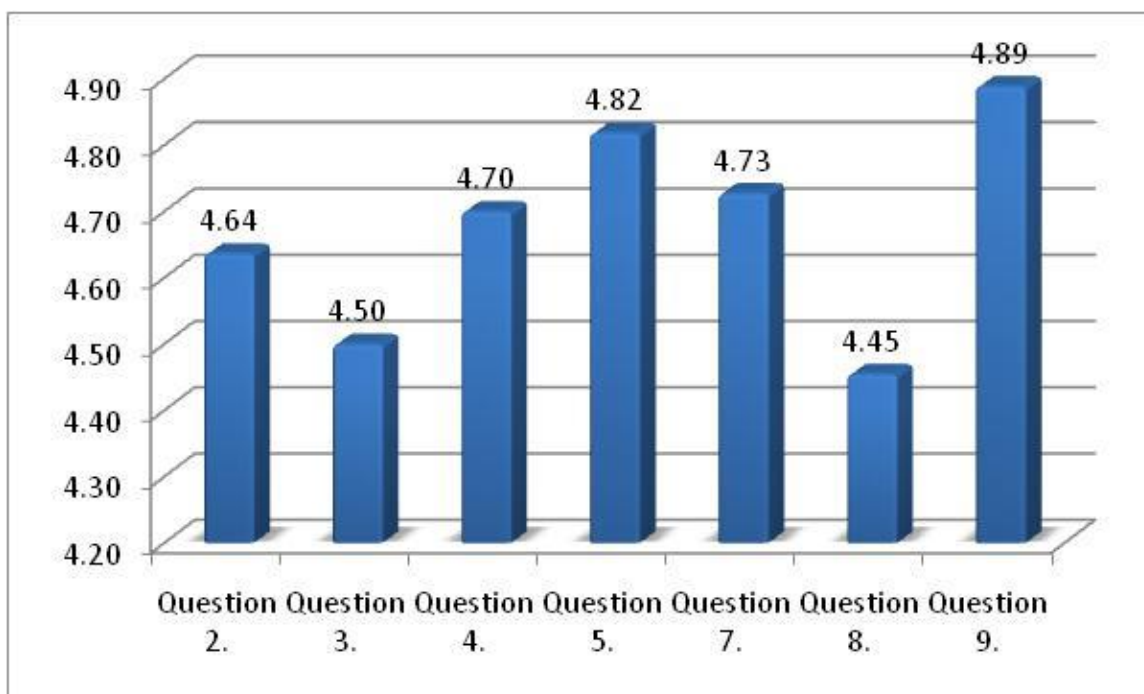


10. Remarks and suggestions about this short cycle studies

**None**

## 7.3 Average mark on short cycle program Web Application Programmer

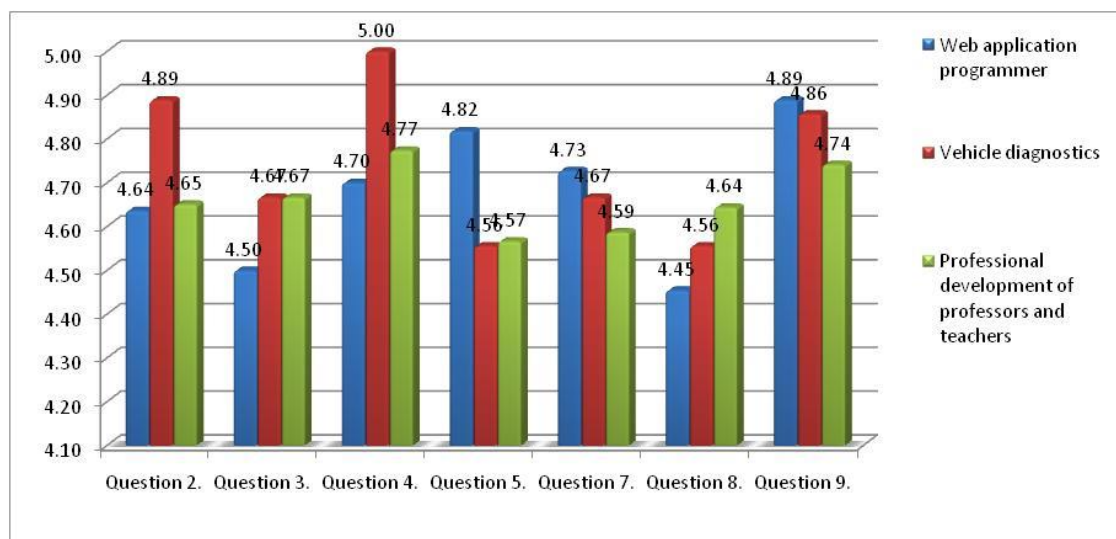
Question number	Question	Mark
Question 2.	Mark the quality of lectures held on short cycle studies:	4.64
Question 3.	Mark the consultation and relationship professor, student of short cycle studies:	4.50
Question 4.	Mark work conditions on short cycle studies:	4.70
Question 5.	Mark learning materials on short cycle studies:	4.82
Question 7.	Mark organization of short cycle studies:	4.73
Question 8.	Whether teaching has fulfilled your expectations:	4.45
Question 9.	Knowledge gained from short cycle studies while by useful in future work:	4.89
average mark:		4.68



Average mark on short cycle Web application programmer studies is 4,68.

## 7.4 COMPARATIVE ANALYSIS

Question number	Question	Mark (PDoP&T)	Mark (VD)	Mark (WAP)
Question 2.	Mark the quality of lectures held on short cycle studies:	4.65	4.89	4.64
Question 3.	Mark the consultation and relationship professor, student of short cycle studies:	4.67	4.67	4.50
Question 4.	Mark work conditions on short cycle studies:	4.77	5.00	4.70
Question 5.	Mark learning materials on short cycle studies:	4.57	4.56	4.82
Question 7.	Mark organization of short cycle studies:	4.59	4.67	4.73
Question 8.	Whether teaching has fulfilled your expectations:	4.64	4.56	4.45
Question 9.	Knowledge gained from short cycle studies while by useful in future work:	4.74	4.86	4.89
average mark:		4.66	4.74	4.68



Average mark on short cycle Professional development of professors and teachers studies is 4,66.

Average mark on short cycle Vehicle diagnostics studies is 4,74.

Average mark on short cycle Web application programmer studies is 4,68.

---

## 8. Sertificate

Official certificates for completed short programs are not yet defined by the Ministry of Education of the Republic of Serbia. The issue of official certificates should be resolved by sub-legal acts which are not yet published.

VISER has made a certificate for all the students who successfully completed short cycle program (Fig. 8.1). Certificate includes basic information on the student, and finished short cycle program, number of ECTS of the program, and an attachment to certificate which includes marks and number of ECTS for every course on the program (Fig. 8.2).

So far, a total of 86 students have finished short Cycle programs organized by VISER:

- 68 students finished short cycle F2F program Professional development of professors and teachers.
- 9 students finished short cycle F2F program Vehicle diagnostics.
- 9 students finished online short cycle program Web application programmer.

Nine students finished online program Web application programmer. Three more students have passed some of the exams, but not all of them, while five students didn't take any of the exams in the program. One of those five students gave up during the teaching of the second course because of his private obligation. Other 4 students haven't done all the weekly tasks but they were interested to finish the program in their own terms, the dynamics of the course was too fast for them.





**ВИСОКА ШКОЛА ЕЛЕКТРОТЕХНИКЕ И РАЧУНАРСТВА  
СТРУКОВНИХ СТУДИЈА**  
РЕПУБЛИКА СРБИЈА, БЕОГРАД, Војводе Степе 283  
МБ 07040512 ПИБ 100373303  
Телефон/Факс Интернет адреса Адреса електронске поште  
011/2471-099 [www.viser.edu.rs](http://www.viser.edu.rs) [office@viser.edu.rs](mailto:office@viser.edu.rs)

Број: 2002 / 1  
Датум: 03.10. 2018. године

На захтев Славише (Стеван) Симоновића, а на основу службене евиденције и члана 29. Закона о општем управном поступку ("Сл. гласник РС", бр. 18/2016), Висока школа електротехнике и рачунарства струковних студија у Београду издаје следеће

### УВЕРЕЊЕ

#### О ЗАВРШЕНОМ КРАТКОМ ПРОГРАМУ СТУДИЈА

#### *Програмер веб апликација*

**Славиша (Стеван) Симовић**, ЈМБГ 1901972910016, рођена дана 19. 01. 1972. године у Приштини, Република Србија, са звањем дипломирани инжењер електротехнике стеченим на Електротехничком факултету у Приштини, Универзитета у Приштини, уписан на кратки програм студија Програмер веб апликација у Високој школи електротехнике и рачунарства струковних студија у Београду, дана 03. 10. 2018. године успешно је завршио напред наведени кратки програм студија и стекао **30 ЕСПБ**.

У прилог овог уверења је евиденција о испитима које је именовани полазник положио кроз кратки програма студија Програмер веб апликација, са наведеним бројем ЕСПБ бодова.

Ово Уверење се издаје подносиоцу захтева без наплате таксе, на основу члана 19. тачка 7. Закона о републичким административним таксама ("Сл. гласник РС", бр. 43/2003, 51/2003 - испр., 61/2005, 101/2005 - др. закон, 5/2009, 54/2009, 50/2011, 70/2011 - усклађени дин. изн., 55/2012 - усклађени дин. изн., 93/2012, 47/2013 - усклађени дин. изн., 65/2013 - др. закон, 57/2014 - усклађени дин. изн., 45/2015 - усклађени дин. изн., 83/2015, 112/2015, 50/2016 - усклађени дин. изн., 61/2017 - усклађени дин. изн., 113/2017 и 3/2018 - испр.).



ДИРЕКТОР ШКОЛЕ

Проф. др Вера Петровић

Fig.8.1 Certificate of completed Web application programmer

ПРИЛОГ УВЕРЕЊУ БРОЈ 2002/1 од 03.10. 2018. године

Евиденција предмета из којих је полазник **Славише (Стеван) Симовића**,  
ЈМБГ 1901972910016, положио испите у оквиру кратког програма студија  
Програмер веб апликација:

Назив предмета	Број ЕСПБ	Оцена
<i>ВЕБ дизајн</i>	6	10
<i>Интернет програмирање</i>	6	10
<i>Објектно оријентисано програмирање 1</i>	6	10
<i>Стандардни кориснички интерфејси</i>	6	10
<i>Технике визуелног програмирања</i>	6	8



ДИРЕКТОР ШКОЛЕ

Проф. др Вера Петровић

Fig.8.2 Attachment to certificate of completed program Web application programmer

---

## 9. CONCLUSION

Short cycle program Web application programmer provides rapid adoption of knowledge in web programming. The program is demanding and students must be very motivated and disciplined to follow the dynamics of the program. Based on the experience acquired during the pilot program, analyzes and improvements will be made considering learning materials and some organization issues

Most students expressed the opinion that the program should last longer and that it was difficult for them to finish the tasks they received in such short periods. On the other hand, the courses were linked and it was necessary that students master the knowledge of the previous course so that they would follow the next course.

Compared to other pilot programs organized by VISER, this pilot program had the lowest (50%) percentage of students successfully completing the program. One of the reasons for this is that online students have the freedom to learn when it suits them, so much more motivation and personal discipline is needed for online learning. On the other hand, students had a big motivation for applying to this program, because the knowledge in the field of programming is required in the labor market. But the abandonment of these skills is difficult because besides the knowledge of the theoretical concepts and the overcoming of different tools programming demands problem solving skills.

Based on the survey results presented in Chapter 7 of this report, as well as conversations with students, it can be concluded that students are satisfied with the learning materials as well as the organization of the program.

Web application programmer is a successfully performed pilot short cycle program. After finishing this program, students get one set of Web programming skills that gives them a lot of options to find a job, and gives them the basis for further improvement.