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Erasmus+ Programme
of the European Union

LLL courses report No. 1

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Project acronym:	ADA
Project full title:	Advanced Data Analytics in Business
Project No:	598829-EPP-1-2018-1-RS-EPPKA2-CBHE-JP
Funding scheme:	ERASMUS+
Project start date:	November 15, 2018
Project duration:	36 months

Abstract	This report is joint LLL courses report No. 1, i.e. the report of the organization of the first round of LLL courses for professionals in Serbia, within ADA project. This report as a result of the activity 3.3 Organization of LLL program. It consists of the description of the process of the organization of the first round of LLL courses, the list of the courses and lecturers and feedback analysis i.e. analysis of the questionnaires filled in by attendees of the courses.
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Title of document:	LLL courses report No. 1
Work package:	WP3: Implementation of the program
Activity:	3.3 Organization of LLL program
Last version date:	15/07/2021
File name:	LLL courses report No. 1.pdf
Number of pages:	11
Dissemination level:	Consortium

VERSIONING AND CONTRIBUTION HISTORY

Version	Date	Revision description	Partner responsible
1.0	15/07/2021	Creation of document	UNIKG

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First round of the LLL courses

Preparatory phase

LLL program within ADA project is intended for professionals already working in different areas of economy, industry, and public sector. Choice of suitable topics and courses is done during Steering Committee meetings of ADA project.

In spring 2021, due to still on-going COVID-19 pandemic, it was decided that the first round of LLL courses should be organized online and during June 2021. Each of universities-project partners was invited to suggest one or two courses (preferably from the list of previously accepted courses), which is most suitable for online teaching. The plan was that each course should last 3 days, 3-4 hours per day. Also, the suggestion was that courses should be organized in the afternoon hours and during the weekend, since the main target group for these courses were employed professionals.



The final list of the LLL courses to be offered in the first round was created by the end of April 2021, as follows:

LLL course code	LLL course title	Lecturer	Level	Schedule
UNS1	Machine Learning	Aleksandar Kupusinac, University of Novi Sad	Introductory	15, 16 and 17 June - 17-20h
UB1	Introduction to Statistical Inference	Bojana Milošević, University of Belgrade	Introductory	5, 6 and 12 June – 10-13h
UB2	Big Data Analytics	Aleksandar Veljković, University of Belgrade	Intermediate	5, 6 and 12 June – 12-15h
UNI1	Python programming in Business	Marko Petković, University of Niš	Introductory	7, 9 and 14 June – 18-21h
UNIKG1	Napredni modeli za ocenu finansijskih rizika	Mikica Drenovak, University of Kragujevac	Intermediate	2, 3 and 4 June – 17-20h
WU1	Managerial Artificial Intelligence – The Art of Modeling Success	Ronald Hochreiter, Vienna University of Economics and Business, Austria	Introductory	1, 8. and 15 June – 16-19h
UNITOV1	Designing Communication of Results	Luca Gnan, University of Rome Tor Vergata, Italy	Introductory	9, 10 and 11 June – 16-19h
CERTH1	Multiple Criteria Decision Making	Jason Papathanasiou, University of Macedonia and CERTH, Greece	Introductory	4, 11 and 18 June – 16-19h

Promotion of the offered LLL courses was performed during May 2021 by SAM – ADA project partner, which invited all its members to apply for the courses, by Association of Serbian Banks b.a., through project website and social media channels and through personal contacts.



Implementation phase

The application and course participation was free and attendees could apply to several courses, even to all of them. The application was e-mail, to dedicated e-mail address ada@uni.kg.ac.rs, and the process of application was organized and maintained by UNIKG team. The number of application per LLL course is presented in the following table.

LLL course code	LLL course title	Number of applicants
UNS1	Machine Learning	45
UB1	Introduction to Statistical Inference	38
UB2	Big Data Analytics	51
UNI1	Python programming in Business	77
UNIKG1	Advanced financial risk modeling	34
WU1	Managerial Artificial Intelligence – The Art of Modeling Success	30
UNITOV1	Designing Communication of Results	22
CERTH1	Multiple Criteria Decision Making	31

It should be noted that a lot of participants decided to apply for several (even all) courses, but later, when the courses started, many of them didn't show (in some cases less than 25% of the applied actually showed at the start of the course). All LLL courses were organized as planned, with minor changes in start dates for two courses, caused by personal issues of the lecturers. The organization of the lectures, choice of online platform (Zoom, Microsoft Teams, Google Meet, etc.) and invitation of the applicants was performed by each institution/course itself.

Feedback from the attendees

As planned by the Project application and Quality and Assessment plan of the project, at the end of courses, the survey of the quality of the LLL courses was performed by UNIKG, responsible for WP5 Quality control and monitoring and also for the implementation of LLL program. The survey was organized online, using Google Forms and survey template for LLL courses, from the Quality and Assessment plan, adapted to online courses. An e-mail invitation was sent to each applicant to the course, followed by two reminders, to those who didn't reply to the first invitation. It should be noted that the number of respondents was quite low (less than a half of those who stayed until the end of the course responded to the survey), partially due to high churn of the applicants (high non-show rate) and beginning of summer holidays (in many cases, invitations to the survey were replied automatically by out-of-the-office messages).

Quantitative results of the survey (statements and average scores) are presented in the following table.



STATEMENT	UNS1	UB1	UB2	UNI1	UNIKG1	WU1	UNITOV1	CERTH1	TOTAL
Online platform used for the course functioned without any problems.	3.8	4.6	4.4	4.4	5.0	5.0	4.5	4.3	4.50
Course objectives are clearly defined.	4.2	4.8	4.4	4.2	4.0	4.0	4.0	4.3	4.24
The course is well structured.	4.2	4.6	4.4	4.2	5.0	4.0	4.5	5.0	4.49
Teaching materials (recommended readings, manuals, etc.) were clear and easy to read and they facilitate learning.	4.3	4.4	4.4	4.4	-	-	5.0	4.3	4.47
The course was supported with enough illustrations (examples, case studies, exercises, etc.).	4.4	4.6	4.8	4.4	-	5.0	4.5	4.3	4.57
My thinking and discussions were stimulated.	4.2	4.6	4.3	4.1	-	5.0	4.5	4.3	4.43
The lectures were organized on time (according to the schedule).	3.6	4.8	4.9	3.6	-	5.0	5.0	4.3	4.46
The course is presented in an interesting and dynamic way.	4.4	4.6	4.2	4.0	5.0	5.0	4.0	4.3	4.44
The use of didactic material (slides, blackboard, films, etc.) helped me to understand the concepts that were taught.	4.2	4.4	4.7	4.2	-	-	4.5	4.3	4.38
The lecturer's oral expression is good (clarity, volume, tone, flow).	4.5	4.8	5.0	4.1	-	5.0	4.5	4.3	4.60
The lecturer shows show interest in teaching.	4.5	4.8	5.0	4.2	-	5.0	4.0	4.3	4.54
The lecturer is readily available to answer your questions.	4.5	5.0	5.0	4.4	-	5.0	4.5	4.3	4.67
The lectures of visiting lecturer were very useful.	4.2	4.6	4.5	4.3	5.0	5.0	5.0	4.3	4.61
I got the knowledge I had expected from this course.	4.0	4.0	4.0	4.1	5.0	5.0	5.0	4.3	4.43

The gained knowledge improves my competences and performance at my workplace.	3.6	4.0	3.9	3.8	5.0	5.0	5.0	4.3	4.33
I have made significant advances in learning in this course.	3.8	4.0	3.9	3.8	5.0	3.0	5.0	4.3	4.10
In general, I appreciate this course.	4.2	4.6	4.6	4.3	-	5.0	5.0	4.3	4.57
I would recommend this subject to the others.	4.0	4.6	4.6	4.2	-	5.0	5.0	4.3	4.53
TOTAL	4.14	4.54	4.50	4.13	4.88	4.75	4.64	4.37	4.49
Number of respondents	5	5	9	18	1	1	2	3	

The highest average score (4.67) was recorded for the statement *The lecturer is readily available to answer your questions*, which confirms dedication of the lecturers to the attendees. Generally, all scores related to the quality of the course and the lecturer were high. All average scores were above 4.0. The average lowest score (4.10) was recorded for the statement *I have made significant advances in learning in this course*. This is probably due to the fact that majority of the courses were at the introductory level, and probably participants already had some pre-knowledge in this area, and therefore, they didn't experience significant advances in knowledge.

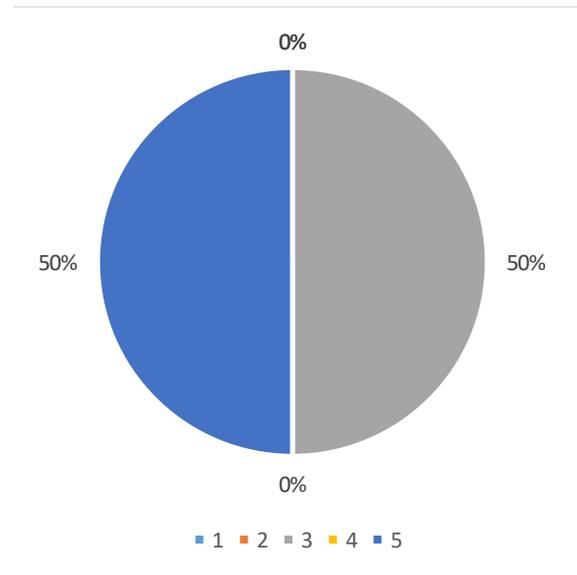
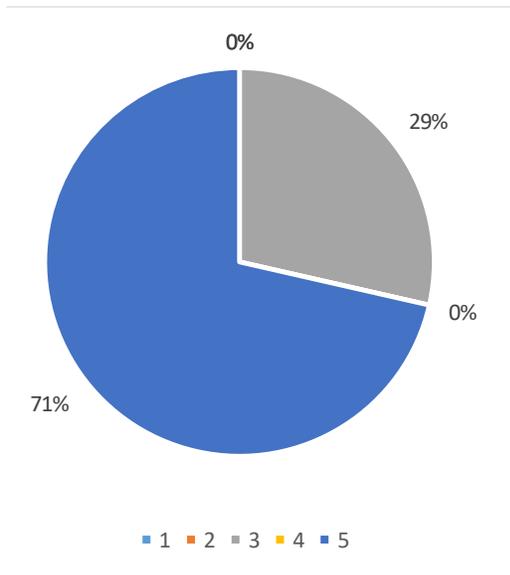
We have analyzed the distribution of the answers to the two probably most important questions: *In general, I appreciate this course*, and *I would recommend this subject to the others*, which, in our opinion, summarize the participant's attitude towards the LLL course. The distribution of the scores for each course is presented in the following graphs.



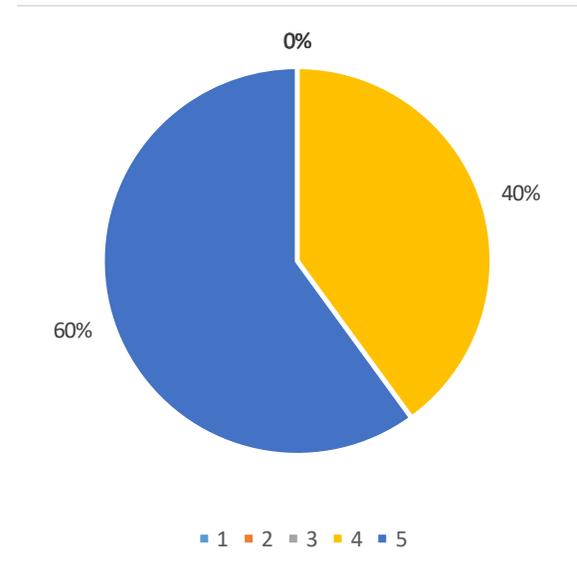
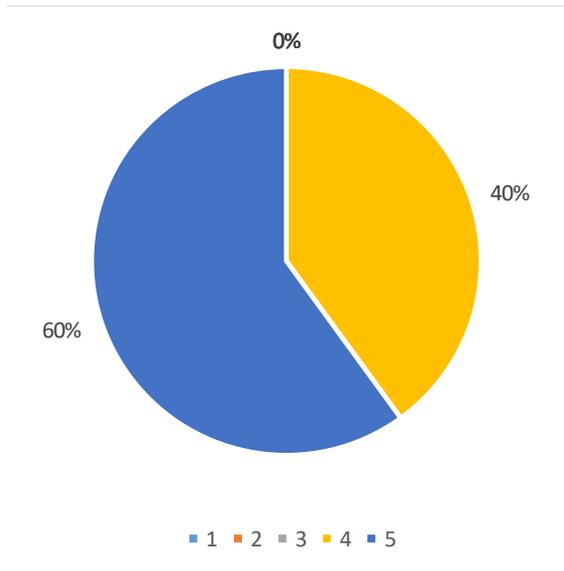
In general, I appreciate this course

I would recommend this subject to the others

COURSE: UNS1 - Machine Learning



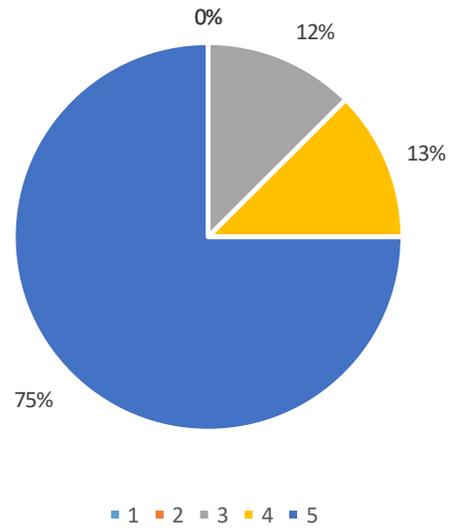
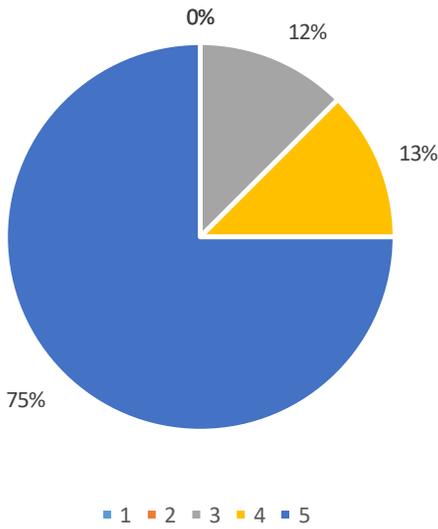
COURSE: UB1 - Introduction to Statistical Inference



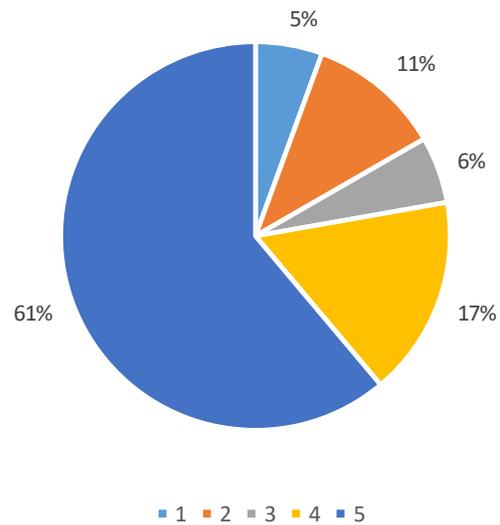
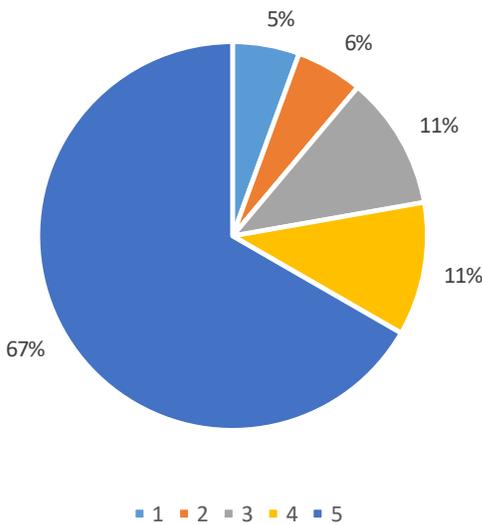
In general, I appreciate this course

I would recommend this subject to the others

COURSE: UB2 - Big Data Analytics



COURSE: UNI1 - Python programming in Business

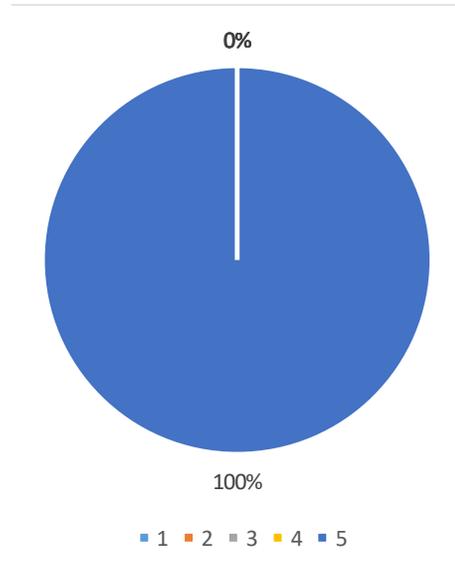
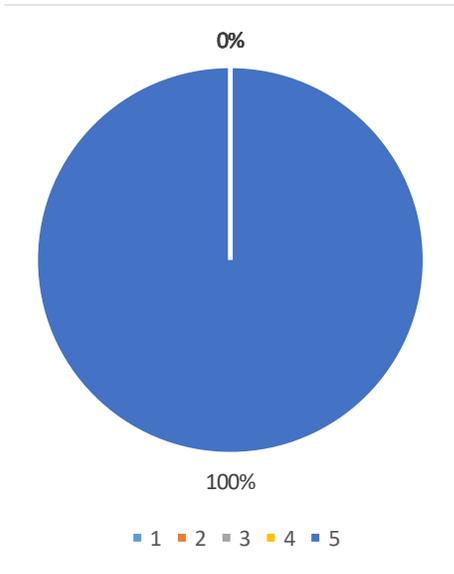




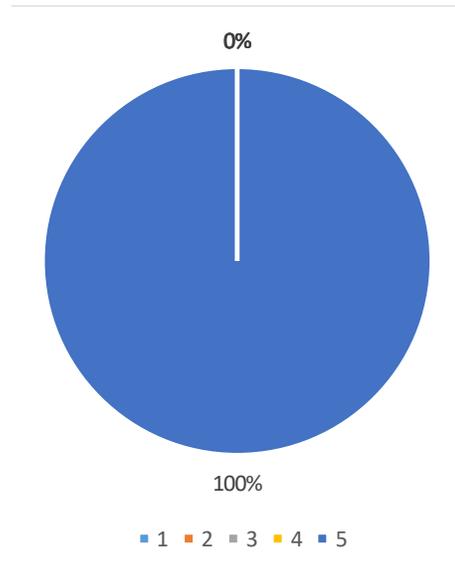
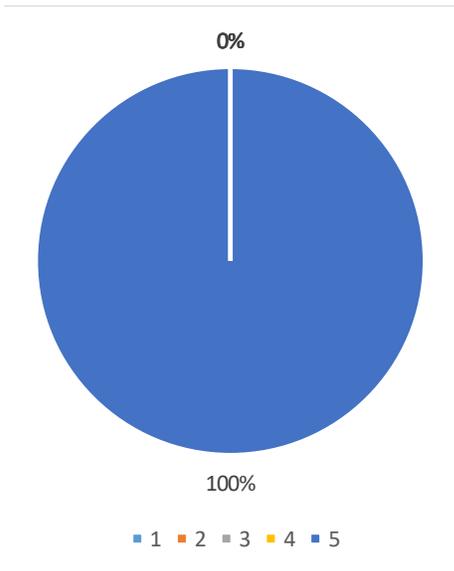
In general, I appreciate this course

I would recommend this subject to the others

COURSE: WU1 - Managerial Artificial Intelligence – The Art of Modeling Success



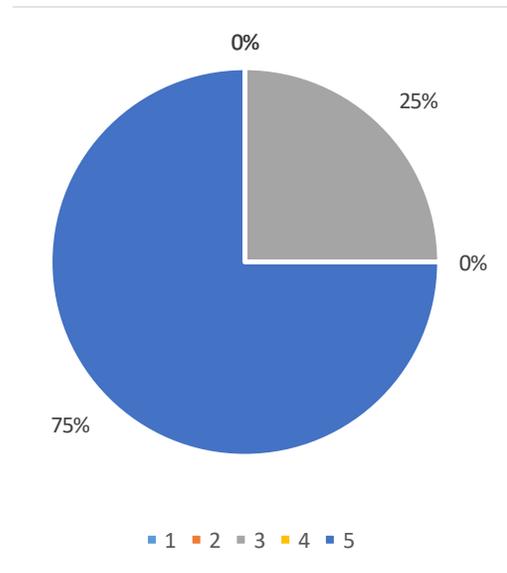
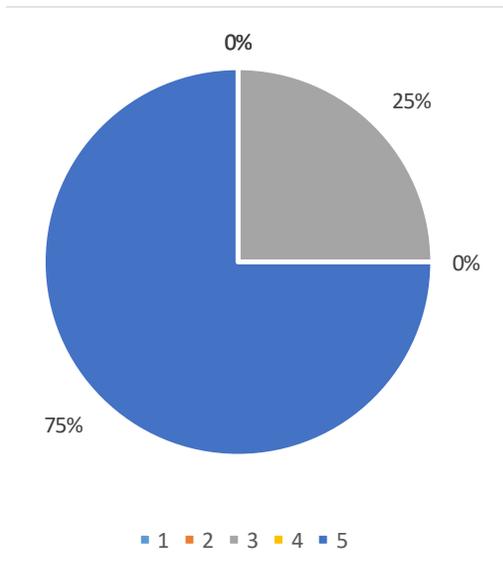
COURSE: UNITOV1 - Designing Communication of Results



In general, I appreciate this course

I would recommend this subject to the others

COURSE: CERTH1 - Multiple Criteria Decision Making



The analysis of open-ended questions gave the organizers some interesting ideas and guidelines for the next round of the LLL courses. The answers to the first open-ended question (*What did you particularly like about this course/teacher and what are its strengths?*) show that most of the participants were impressed by the knowledge, experience and dedication of the lecturers. The answers to the second open-ended question (*What did you particularly dislike about this course/teacher and what are its weaknesses?*) show that there were no significant deficiencies, only a few of respondents at some courses would prefer more practical examples or complained on lack of interactivity during the course.



Finally, third open-ended question (*Do you have any suggestions for the improvement?*) brought the organizers several ideas how to make next round better. Several respondents asked for the sequel of the courses. Also, in some cases, they asked longer courses (“Three days are just now enough”) and more hours, and more practical examples and more interactivity during the course. In addition, respondents asked for more practical examples from particular areas of business, such as banking or marketing and more courses with coding.