



Report WP2-A1

Overview of current textbooks
and other educational
materials used by the project
partners in their courses



Result: Overview of current textbooks and other educational materials used by the project partners in their courses

Related to: WP2-A1: WP2-A1: Definition of online educational platform parameters

Statement of originality

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Note

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1. Introduction

This report presents the results of a survey performed among the project Partners. The survey was related to the sources of knowledge they use, recommend to students in teaching / learning process.

2. Definitions and abbreviations

Simulation – The process of modelling, performed on a computer, which is designed to predict the behaviour of a real-world or physical system.

Virtual Reality – an experience in which a person is surrounded by a three dimensional computer-generated virtual world, and is able to move around and do various actions.

3. Work methodology

The Partners filled a questionnaire answering the following questions:

3. Topic
4. Sources (books, e-books, websites, videos, research papers, open e-learning courses, etc.)
5. Language
6. Way of using the teaching materials (during projects / lectures / labs / workshop, as support for homework, as self-study for students, etc.)
7. How the materials are adapting through time? (new sources are chosen, the materials evolve, no updates, etc.)
8. Are students engaged in materials development / evolving?

4. Results of the survey

4.1. Sources

The types of materials used by the Partners are as follow:

- Books
- Books available online
- E-books, lecture notes, tutorials' notes, labs materials
- Interactive Course
- Video recordings of lectures and tutorials (published in Moodle)
- YouTube recordings
- YouTube Channel
- Online interactive simulation tools and programming exercises
- Internal Wikipedia-like website for support for laboratory exercises

- Lecture slides and tutorial/exercise material (available in ppt/pdf on the learning management system)
- Table of videos proposed from the students on specific topics, supporting visual understanding of complex physical processes and applications
- Past years projects
- Past years exams
- Portal for cooperating organizations (technical high-schools)
- Online quizzes created in Wooclap
- Questionnaires in Google Forms
- PPT presentations with voice recorded
- PPT available online
- Software User's Guides
- Website of a society
- Website of a society software supplier

Annex presents all the materials indicated by Partners and related to the topics such as:

- UNILJ: Mechatronics,
- KTH: Assembly, Production process planning and monitoring,
- UNIPI: Manufacturing processes,
- PRZ: Lean manufacturing, Data analytics, Simulations

4.2. Language

The Partners materials are in the following languages:

- UNILJ: SLO, ENG, CRO, H, IT
- KTH: ENG, SWE
- UNIPI: IT, ENG (for some materials)
- PRZ: PL, ENG, chosen materials also in NO, IT, PT, FI

4.3. Way of using the teaching/learning materials

The following ways of using the teaching/learning materials were indicated:

- As self-study
- Support for homework
- During labs
- During lectures
- During projects
- Support for tutorials and preparation for labs
- The involved schools or companies will make the parts based on the instructions of the students

4.4. The materials change over time

The following ways of the teaching/learning materials were indicated:

- No updates
- Lecture notes: annual updates by teachers
- Weekly or monthly updates by teaching assistants
- N/A (outside source)
- Updates when lab. exercises change or when the need arises for a more detailed explanations
- Students fill an online form. The video adherence to the academic purpose and information content conformance are controlled by the professor who accepts or rejects the proposal, if accepted, the Video link is included in the online list.
- Lab sessions, practical lectures and seminars recorded and posted on You Tube channel
- New project generated during the years are added to the folder yearly
- New exams generated during the years are added to the folder yearly
- The students can have an activate cooperation with technical schools or companies
- Each lecture is recorded
- It is accompanied with a detailed description of the topics, including the main keywords
- Now the students can find and listen to the corresponding lecture for each book sections

- New sources are chosen
- The materials evolve (changes made by external supplier)

4.5. Students engagement in materials development / evolving

- NO – 13 cases
- N/A (outside source) – 9 cases
- Students engaged in the development - 6 cases
- Students can add comments and reply on every part of the text
- Group projects are formed including high-school students

Summary

From the survey the following information can be taken to the development of the evolving textbook platform functionalities:

- Possibility to use tools such as Wooclap or Google Forms
- Possibility to engage students in searching interesting materials (Websites, YouTube videos, online books, etc.)
- Possibility to engage students in creating the teaching / learning materials
- Possibility to use previous projects, exams as examples
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References

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Appendix

Data related to sources of knowledge used / recommend to students in teaching / learning process.

Partner	Topic	Sources (books, e-books, websites, videos, research papers, open e-learning courses, etc.)	Language	Way of using the teaching/ learning materials (during projects / lectures / labs / workshop, as support for homework, as self-study for students, etc.)	How the materials are adapting through time? (new sources are chosen, the materials evolve, no updates, etc.)	Are students engaged in materials development / evolving?
UNILJ	Mechatronics	Books: Primož Podržaj: "Linearna teorija krmiljenja sistemov" and "Zbirka rešenih nalog s področja teorije krmiljenja sistemov" Siciliano: "Robotics: Modelling, Planning and Control" Corke: "Robotics, Vision & Control" Siegwart: "Introduction to Autonomous Mobile Robots" Horton: "Beginning C++" Požrl: "Računske naloge z rešitvami - Elektrotehnika in elektronika"	SLO, ENG	<ul style="list-style-type: none"> as self-study support for homework during labs 	<ul style="list-style-type: none"> No updates 	NO
		Books available online: Diaci: Programirljivi logični krmilniki (zapiski vaj) Diaci: Diskretni krmilni sistemi (zapiski vaj) Jenko: Elektrotehnika	SLO	<ul style="list-style-type: none"> as self-study during lectures / projects / labs support for homework 	<ul style="list-style-type: none"> No updates 	NO
		E-books, lecture notes, tutorials' notes, labs materials: For all lectures, tutorials and labs taught at 1 st , 2 nd level and Erasmus study programmes Available as PPT presentations or PDFs in e-classroom	SLO, ENG	<ul style="list-style-type: none"> as self-study Support for homework During lectures, labs, projects 	<ul style="list-style-type: none"> Lecture notes: annual updates by teachers Weekly or monthly updates by teaching assistants 	NO
		Interactive Course on Control Theory	SLO, ENG, CRO, H, IT	<ul style="list-style-type: none"> as self-study 	<ul style="list-style-type: none"> No updates 	NO

Partner	Topic	Sources (books, e-books, websites, videos, research papers, open e-learning courses, etc.)	Language	Way of using the teaching/ learning materials (during projects / lectures / labs / workshop, as support for homework, as self-study for students, etc.)	How the materials are adapting through time? (new sources are chosen, the materials evolve, no updates, etc.)	Are students engaged in materials development / evolving?
		Video recordings of lectures and tutorials: Selected courses at 1 st level programmes: Elektrotehnika, Elektrotehnika in elektronika, Programiranje v mehatroniki, Mehatronski aktuatorji All courses at 2 nd level programmes: Diskretni krmilni sistemi, Napredni senzorski sistemi in omrežja, ... Published inside courses in e-classroom (Moodle)	SLO	<ul style="list-style-type: none"> as self-study support for homework during lectures, labs, projects 	<ul style="list-style-type: none"> Lectures: no updates Tutorials: annual updates for some courses 	NO
		YouTube recordings of demonstrations and experiments: https://www.youtube.com/watch?v=871L-BroOS4 https://www.youtube.com/watch?v=kJKYtnWZhWg https://www.youtube.com/watch?v=zZFL7L9tx1&feature=youtu.be https://www.youtube.com/watch?v=PlpHlouDPOo&feature=youtu.be https://www.youtube.com/watch?v=WDHa5ZKrZjk https://www.youtube.com/watch?v=rWwpF5PW0CM https://www.youtube.com/watch?v=oGPN6UQ11p8&t=9s https://www.youtube.com/watch?v=SmxAFdQ0zag&t=525s https://www.youtube.com/watch?v=lpiej416Zlo + more	SLO	<ul style="list-style-type: none"> Support for tutorials and preparation for labs As self-study 	<ul style="list-style-type: none"> No updates 	NO

Partner	Topic	Sources (books, e-books, websites, videos, research papers, open e-learning courses, etc.)	Language	Way of using the teaching/ learning materials (during projects / lectures / labs / workshop, as support for homework, as self-study for students, etc.)	How the materials are adapting through time? (new sources are chosen, the materials evolve, no updates, etc.)	Are students engaged in materials development / evolving?
		Online interactive simulation tools and programming exercises: www.falstad.com https://www.analog.com/en/design-center/design-tools-and-calculators/ltspice-simulator.html https://ngspice.sourceforge.io/ https://edabit.com/challenges https://projecteuler.net/archives https://leetcode.com/problemset/all/ https://code.golf/ https://codegolf.stackexchange.com/ + more	ENG	<ul style="list-style-type: none"> • as self-study • support for homework • during lectures, labs, projects 	N/A (outside source)	N/A (outside source)
		Internal Wikipedia-like website for support for laboratory exercises: <ul style="list-style-type: none"> • https://wiki.fs-lampa.si/#/ • Descriptions of laboratory exercises • Descriptions of laboratory equipment (power supply, microcontroller, PLC, electric motor control, ...) • Descriptions and typical usages of the development environments and programming languages (Arduino, Siemens Logo, CodeSys, ...) • Common topics in mechatronic exercises (basics of electrical engineering, typical control signals, ...) 	SLO	<ul style="list-style-type: none"> • support for labs • as self-study 	<ul style="list-style-type: none"> • Updates when lab. exercises change or when the need arises for a more detailed explanations 	NO
KTH	Assembly	Books Whitney, D.E., 2004. Mechanical assemblies: their design, manufacture, and role in product development (Vol. 1). Lecture slides and tutorial/exercise material (available in ppt/pdf on the learning management system) Video recordings of lectures and tutorials (previously used during pandemic)	ENG	<ul style="list-style-type: none"> • As support for the project • As self-study • During lecture and project 	<ul style="list-style-type: none"> • n/a 	no

Partner	Topic	Sources (books, e-books, websites, videos, research papers, open e-learning courses, etc.)	Language	Way of using the teaching/ learning materials (during projects / lectures / labs / workshop, as support for homework, as self-study for students, etc.)	How the materials are adapting through time? (new sources are chosen, the materials evolve, no updates, etc.)	Are students engaged in materials development / evolving?
	Production process planning and monitoring	Books: Production and Operation Analysis, Steven Nahmias, 6th edition. Lean – Turn Deviations to Success, Peterson, Broman et al. Extra literature: The Toyota Way - 14 Management Principles from the World's Greatest Manufacturer, Jeffrey Liker. Produktionsekonomi (Swedish), Jan Olhager. The machine that changed the world, James P Womack, Daniel T Jones, Daniel Roos. Lecture slides and tutorial/exercise material (available in ppt/pdf on the learning management system)	ENG/SWE	<ul style="list-style-type: none"> As support for the project and the lab As self-study During lecture, labs, and project 	<ul style="list-style-type: none"> Updates when lab change 	No
UNIPIS	Manufacturing processes	Table of manufacturing processes videos proposed from the students on specific topics, supporting visual understanding of complex physical processes and applications. http://news.lanzetta.unipi.it/p/video-tecnologia-meccanica.html https://docs.google.com/spreadsheets/d/19eSPrVriYjRN6JiOIvo5v3HULZc-1CoYdsSgSGzbCFM/edit#gid=1046841056	ENG, ITA	<ul style="list-style-type: none"> as self-study for students during lectures support for homework 	<ul style="list-style-type: none"> Students fill an online form. The video adherence to the academic purpose and information content conformance are controlled by the professor who accepts or rejects the proposal, if accepted, the Video link is included in the online list. 	Students engaged in the development
		YouTube Channel Tecnologia Meccanica @ UNIPIS https://www.youtube.com/@TecnologiaMeccanicaUniPisa/videos	ITA	<ul style="list-style-type: none"> support for homework as self-study for students 	<ul style="list-style-type: none"> Lab sessions, practical lectures and seminars recorded and posted on You Tube channel 	Students engaged in the development
		Past years Manufacturing Processes projects https://drive.google.com/drive/folders/1vJHpzgWSVg5ZR3KEeNGH2zdvTjSRrEtI	ITA	<ul style="list-style-type: none"> support for homework 	<ul style="list-style-type: none"> New project generated during the years are added to the folder yearly 	Students engaged in the development

Partner	Topic	Sources (books, e-books, websites, videos, research papers, open e-learning courses, etc.)	Language	Way of using the teaching/ learning materials (during projects / lectures / labs / workshop, as support for homework, as self-study for students, etc.)	How the materials are adapting through time? (new sources are chosen, the materials evolve, no updates, etc.)	Are students engaged in materials development / evolving?
		Past years Manufacturing Processes exams https://drive.google.com/drive/u/0/folders/0Bys-IU_Yv0e_RWIRd1BzTmRoZ0k?resourcekey=0-WKX_zipVKBurMEnu6ynEVg	ITA	<ul style="list-style-type: none"> support for homework 	<ul style="list-style-type: none"> New exams generated during the years are added to the folder yearly 	Students can add comments and reply on every part of the text
		Portal for cooperating organizations (technical high-schools) https://live.cafre.unipi.it/	ITA	<ul style="list-style-type: none"> The involved schools or companies will make the parts based on the instructions of the students 	<ul style="list-style-type: none"> The students can activate cooperations with technical schools or companies 	Group projects are formed including high-school students
		Lectures recorded, ordered from 2020 (two courses, yearly) https://docs.google.com/spreadsheets/d/1_exxZ_LLxiR554wsC_yxGyeyLR43skdT_2RAU_Lxswyw/edit#gid=1853061593	ITA	<ul style="list-style-type: none"> support for homework as self-study for students 	<ul style="list-style-type: none"> Each lecture is recorded It is accompanied with a detailed description of the topics, including the main keywords Now the students can find and listen to the corresponding lecture for each book sections 	N/A
PRZ	Lean manufacturing	Book available online: Lean Manufacturing. Kompendium wiedzy. Pod red. Doroty Stadnickiej. Oficyna Wydawnicza Politechniki Rzeszowskiej. Rzeszów 2021. https://oficina.prz.edu.pl/fcp/RGBUKOQtTKIQhbx08SikTUARLUWRuHQwFDBoIVUR_NWHlaFVZpCFghUHcKVigEQUw/18/public/otwarty-dostep/2021/stadnicka-kompendium-wiedzy-lm3.pdf	PL	<ul style="list-style-type: none"> support for homework as self-study for students 	<ul style="list-style-type: none"> new sources are chosen 	Students engaged in the development
		Book available online: Problemy w obszarach produkcyjnych. Część 1. Proste metody w trudnych zadaniach. Studia przypadków. Kompendium wiedzy. Pod red. Doroty Stadnickiej. Oficyna Wydawnicza Politechniki Rzeszowskiej. Rzeszów 2021. https://oficina.prz.edu.pl/fcp/iGBUKOQtTKIQhbx08SikTUGxQX2o8DAoHNiwFE1xVT3_xQFVZpCFghUHcKVigEQUw/18/public/otwarty-dostep/2021/stadnicka-tom-1-wd.pdf	PL	<ul style="list-style-type: none"> support for homework as self-study for students 	<ul style="list-style-type: none"> new sources are chosen 	Students engaged in the development

Partner	Topic	Sources (books, e-books, websites, videos, research papers, open e-learning courses, etc.)	Language	Way of using the teaching/ learning materials (during projects / lectures / labs / workshop, as support for homework, as self-study for students, etc.)	How the materials are adapting through time? (new sources are chosen, the materials evolve, no updates, etc.)	Are students engaged in materials development / evolving?
		Book available online: Problemy w obszarach produkcyjnych. Część 2. Pracownik i technologie przyszłości. Studia przypadków. Kompedium wiedzy. Pod red. Doroty Stadnickiej. Oficyna Wydawnicza Politechniki Rzeszowskiej. Rzeszów 2021. https://oficyna.prz.edu.pl/fcp/BGBUKOQtTKIQhbx08SlkTUGxQX2o8DAoHNiwFE1xVT3xXFVZpCFghUHcKVigEQUw/18/public/otwarty-dostep/2021/stadnicka-tom-2-wd.pdf	PL	<ul style="list-style-type: none"> support for homeworks self-study for students 	<ul style="list-style-type: none"> new sources are chosen 	Students engaged in the development
		Video on You Tube: https://www.youtube.com/watch?v=jYby_HczyDA (2 min video)	ENG	<ul style="list-style-type: none"> during lectures 	<ul style="list-style-type: none"> new sources are chosen 	N/A
		Online quizzes created in Wooclap https://www.wooclap.com/	PL ENG	<ul style="list-style-type: none"> during lectures 	<ul style="list-style-type: none"> the materials updated by teacher 	N/A
		Questionnaires in Google Forms	PL ENG	<ul style="list-style-type: none"> during lectures As homework 	<ul style="list-style-type: none"> the materials updated by teacher 	N/A
		PPT presentations with voice recorded: https://ilalean.prz.edu.pl/en/ Example: https://ilalean.prz.edu.pl/fcp/JGBUKOQtTKIQhbx08SlkTVgFQX2o8DAoHNiwFE1xVSH5BG1gnBVcoFW8SBDKRG/55/ila-lean/tablet_course/pl/1_introduction_to_lean_concept_pl_voice.mp4	PL ENG NO IT PT FI	<ul style="list-style-type: none"> support for homework as self-study for students 	<ul style="list-style-type: none"> no updates 	N/A
		PPT available online: https://leanacademy.wbmil.prz.edu.pl/zrodla-wiedzy/prezentacje/rezultaty-projektu-lla https://leanacademy.wbmil.prz.edu.pl/en/knowledge-sources/presentation/lla-results Example: https://leanacademy.wbmil.prz.edu.pl/fcp/RGBUKOQtTKIQhbx08SlkTUARLUWRuHQwFDBoIVURNWHIXFVZpCFghUHcKVigEQUw/309/code_RB0QRPwIQIEdwBEQoGhkfBlAHXTgg/projekt_lla/9_poka_yoke.pdf	PL ENG	<ul style="list-style-type: none"> support for homework as self-study for students 	<ul style="list-style-type: none"> no updates 	N/A

Partner	Topic	Sources (books, e-books, websites, videos, research papers, open e-learning courses, etc.)	Language	Way of using the teaching/ learning materials (during projects / lectures / labs / workshop, as support for homework, as self-study for students, etc.)	How the materials are adapting through time? (new sources are chosen, the materials evolve, no updates, etc.)	Are students engaged in materials development / evolving?
	Data analytics	Videos on You Tobe: https://www.youtube.com/watch?v=aMkXICM1-98&t=5s https://www.youtube.com/watch?v=t8IfQp4A4ZI&index=2&list=PLUQvN0odYQNIHY2WfPD-RN7ShrNCETbrD	ENG	<ul style="list-style-type: none"> as self-study for students 	<ul style="list-style-type: none"> sources updated by teacher 	N/A
		Statistica User's Guide https://docs.tibco.com/pub/stat/14.0.0/doc/html/UsersGuide/GUID-058F49FC-F4EF-4341-96FB-A785C2FA76E9-homepage.html	ENG	<ul style="list-style-type: none"> during labs 	<ul style="list-style-type: none"> the materials evolve (changes made by Statistica Team) 	NO
		Guides supporting Minilab https://www.minitab.com/content/dam/www/en/uploadedfiles/documents/getting-started/MinitabGettingStarted_EN.pdf.coredownload.inline.pdf https://www.minitab.com/content/dam/www/en/uploadedfiles/documents/getting-started/RealTimeSPCGettingStarted_EN.pdf.coredownload.inline.pdf https://www.minitab.com/en-us/products/spm/user-guides/ https://www.minitab.com/en-us/products/spm/user-guides/	ENG	<ul style="list-style-type: none"> as self-study for students 	<ul style="list-style-type: none"> the materials evolve (changes made by Minitab Team) 	N/A
	Simulations	Power point presentations. e-book prepared by teacher: steps of models development for simulation (work in progress)	PL	<ul style="list-style-type: none"> during lectures 	<ul style="list-style-type: none"> the materials evolve (changes made by teacher) 	NO
		Tutorials on Vensim modelling – Youtube: https://www.youtube.com/watch?v=ROclH2hq_Bs https://www.youtube.com/watch?v=j8DhpZGHkn4	PL	<ul style="list-style-type: none"> during labs 	<ul style="list-style-type: none"> no updates 	NO
		e-book from Dr. Erik Pruyt (TUDelft) available at: http://simulation.tbm.tudelft.nl/smallSDmodels/Intro.html The System Dynamics Society is a professional organization dedicated to promoting the development and use of System Dynamics: https://systemdynamics.org/resources/system-dynamics-models/ Forio is a software company that specializes in building interactive simulations and models. They offer a range of free System Dynamics models on their website, which can be found here:	ENG	<ul style="list-style-type: none"> during labs 	<ul style="list-style-type: none"> no updates 	NO

Partner	Topic	Sources (books, e-books, websites, videos, research papers, open e-learning courses, etc.)	Language	Way of using the teaching/ learning materials (during projects / lectures / labs / workshop, as support for homework, as self-study for students, etc.)	How the materials are adapting through time? (new sources are chosen, the materials evolve, no updates, etc.)	Are students engaged in materials development / evolving?
		https://forio.com/simulate/showcase/#orderbyperiodruncount=desc&modelandviewpermissions=view_model_and_interface_source				



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TET: The Evolving Textbook

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