

Project Number: 2018-1-PT01-KA203-047361

MathE Fifth Project Partners Meeting Online 21 December 2020





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ONLINE PROJECT PARTNERS' MEETING

21 December 2020

AGENDA OF THE MEETING

9:30 CET Start of the Meeting (8:30 for PT and IE; 10:30 for LT and RO)

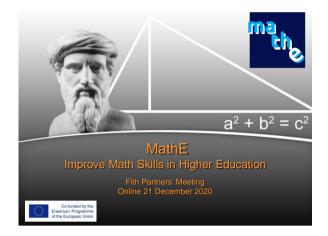
1		Welcome of Participants	IPB
2		Adoption of the agenda	Pixel
3		Preparatory Activities: Involvement of target groups o Presentation of the results achieved	Pixel
4		Presentation of the 3 Intellectual Outputs	
	4.1	Intellectual output 1: Student's Assessment Toolkit O Presentation of the current results	Pixel
	4.2	Intellectual output 2: Online Math Library of Video Lessons and Teaching Materials • Presentation of the current results	Pixel
	4.3	Intellectual output 3: Community of Practice • Presentation of the functionalities • Discussion on how to use the community	All partners

Coffee Break

5		Presentation of the project's events	
	5.1	Multiplayer events (ME)	All partners
		 Timing of the events 	
	5.2	Training Activity in Braganca (TA)	All partners
		 Timing of the event 	
6		Presentation of the Project Management Activities (PM)	
	6.1	Presentation and analysis of PM1: Coordination of Activities	Pixel
		 Presentation of the current situation 	
		 Schedule of future meeting 	
	6.2	Presentation and analysis of PM2: Dissemination	Pixel
		 Presentation of the current results 	
	6.3	Presentation and analysis of PM3: Exploitation	Pixel
		 Presentation of the current results 	
	6.4	Presentation and analysis of PM4: Evaluation	Pixel
		 Presentation of the activities to be carried out 	
7		Any Other Business	All partners

13:00 CET - End of the Meeting (12:00 for PT and IE; 14:00 for LT and RO)





Funding Programme



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Expected Results

The main project tangible results are 3 intellectual outputs:

- Students' Assessment Toolkit
- Online Math Library of Video Lessons and Educational
 Material
- Teachers' and Students' Community of Practices



Project Activities The Project at a Glance October 2018 – December 2018 Student's Assessment Toolkit October 2018 - December 2019 March 2019 - December 2020 January 2021 – June 2021 April 2021 Training Actvity **Preparatory Activity** (part of the Project Management) **Target Groups Involvement**

PM1: Project Management 1/3

Actions to be Carried Out

- Involvement of target groups:
 - 25 lecturers
 - 100 students



PM1: Project Management 2/3

Expected Results

Each partner should select and upload on the project portal at least:

- 5 Lecturers
- 20 Students



PM1: Project Management 3/3

Current Results

Partner	Lecturers	Students
IE_LIT	10	57
IT_UniGenova	5	65
LT_KTU	6	137
PT_IPB	14	412
Ro_Unilasi	8	42
Others	13	26
	58	739





Intellectual Output 1

Student's Assessment Toolkit



IO1: Student's Assessment Toolkit 1/12

Actions to be Carried Out

IO1.1) Creation of all templates needed for carrying out the activities	1 October 2018 15 October 2018
IO1.2) Development of the dedicated project portal section	1 October 2018 30 November 2018
IO1.3) Definition of the questions for the Assessment Tools	1 October 2018 30 June 2019
IO1.4) Review of the questions for the Assessment Tools	1 April 2019 31 December 2019



IO1: Student's Assessment Toolkit 2/12

Templates and Tools

• IO1.A – Assessment Tools



IO1: Student's Assessment Toolkit 3/12

Expected Results

- Identification of 10 Math topics
- Distribution of 2 Math topics per HEI
- Each HEI partner for each of the 2 Math topics should define:
 40 questions/answer for the Student Need Assessment Tool
 20 questions/answer for the Student Assessment Tool
- EuroED will give technical support to TUIasi
- Each HEI partner should review questions/answers for at least 3 Math topics



IO1: Student's Assessment Toolkit 4/12

First Proposal of Topics

- FIRST Proposal of Topics

 1. Manipulation of algebraic expressions (LIT)

 2. Trigonometric functions

 3. Real Functions of a single variable (UniGenova)

 4. Differentiation

 5. Integration (IPB)

 6. Matrix and determinats (KTU)

 7. Geometrical interpretation

 8. EigenValues and EigenVectores

 9. Linear systems (UniGenova)

 10. Complex Numbers

 11. Graphs (UT)

 12. Optimization (IPB)

 13. Limits and sequences

 4. Statistics (KTU)

 15. Real Functions of several variables (TUlasi)

 16. Differential equations (TUlasi)



Web Services

https://www.mathjax.org/

Guppy https://guppy.js.org/site/



IO1: Student's Assessment Toolkit 8/12

Current Results/Self Assessment

Uploaded Questions

Partner	To be evaluated	Approved
IE_LIT	0	102
IT_UniGenova	0	80
LT_KTU	0	80
PT_IPB	0	699
RO_Unilasi	0	114
Tot	0	1075





IO1: Student's Assessment Toolkit 9/12 Current Results/Self Assessment Topic/Subtopic Analytical Geometry (IPB) 40 (UniGe) **43** (UniGe) Complex Numbers (IPB) 43 40 Differential equations (TUIasi) 42 41 **42** (IPB) Differentiation Derivatives (LIT) Implicit Differentiation and Chain Rule (IPB) Partial differentiation (IPB) **68** (IPB) Fundamental Mathematics

47

40

48 (LIT)

41 (IPB)

53 (TUIasi)

35 (IPB)

IO1: Student's Assessment Toolkit 9/12 **Current Results/Self Assessment** Integration Double Integration (IPB) 42 (KTU) Integration Techniques (IPB) 42 41 Definite Integrals (IPB) **44** (IPB) Linear Algebra Eigenvalues and Eigenvectors 40 40 40 (IPB) Linear systems (UniGenova) 51 51 **51** (IPB) Linear Transformations (IPB) 40 40 40 (TUIasi) Matrices and Determinants (KTU) 41 40 **41** (LIT) Vector Spaces (IPB) 40 40 **40** (UniGE)

35

48

41

53

Elementary Geometry (IPB)

Graphs Theory (IPB)

Numerical Methods(IPB)

Expressions and Equations (LIT)

101: Student's Assessment Toolkit 10/12 Current Results/Self Assessment								
Topic/Subtopic	Questions submitted	Questions approved	Questions reviewed	Questions to be reviewed				
Optimization								
Linear Optimization (IPB)	47	47	47 (TUIasi)					
NonLinear Optimization (TUlasci + IPB)	47	47	47 (TUlasi, LIT)					
Probability	46	46	46 (KTU)					
Real functions of single variables (UniGe)								
Limits, Continuity, Domain and Image (UniGe)	53	53	53 (KTU)					
Real functions of several variables (TUlasi)								
Limits, Continuity, Domain and Image ((TUlasci + IPB)	54	53	54 (LIT)	1				
Statistics (KTU)	40	41	40 (IPB)					
Set Theory (IPB)	40	40	40 (IPB)					

IO1: Student's Assessment Toolkit 8/12

Current Results/Final Assessment

Uploaded Questions

Partner	To be evaluated	Approved	Submitted
IE_LIT	0	49	49
IT_UniGenova	0	40	40
LT_KTU	0	40	40
PT_IPB	0	289	289
RO_Unilasi	3	63	66
Tot	3	481	484



IO1: Student's Assessment Toolkit 9/12

Current Results/Final Assessment

submitted	Questions approved	Questions reviewed	Questions to be reviewed
22	20	22 (UniGe)	
20	20	20 (UniGe)	
20	17	17 (IPB)	3 (IPB)
27	27	27 (IPB)	
12	11	12 (IPB)	
15	14	15 (IPB)	
20	20	20 (LIT)	
23	23	23 (IPB)	
21	21	21 (TUIasi)	
	20 20 27 12 15	20 20 20 27 27 27 12 11 15 14 20 20 23 23	20 20 20 (Unice) 20 17 17 (prs) 27 27 27 (prs) 12 11 12 (prs) 15 14 15 (prs) 20 20 20 (UT) 23 23 23 (prs)

IO1: Student's Assessment Toolkit 9/12

Current Results/Final Assessment

Current Results/Final Assessment								
Topic/Subtopic	Questions submitted	Questions approved	Questions reviewed	Questions to be reviewed				
Integration								
Double Integration (IPB)	20	20	20 (IPB)					
Integration Techniques (IPB)	20	20	20 (KTU)					
Definite Integrals (IPB)	23	23	0 (IPB)					
Linear Algebra								
Eigenvalues and Eigenvectors (IPB)	20	20	20 (IPB)					
Linear systems (UniGenova)	20	20	20 (IPB)	- 1000				
Linear Transformations (IPB)	20	20	20 (TUIasi)					
Matrix and determinants (KTU)	20	20	20 (LIT)					
Vector Spaces (IPB)	21	21	21 (UniGE)					
Probability	27	27	27 (KTU)					
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IO1: Studen				
Current Resu	ılts/Fi	nal As	sessn	nent
Topic/Subtopic	Questions submitted	Questions approved	Questions reviewed	Questions to be reviewed
Optimization	Justinetea	арріочец	reveneu	De l'enereu
Linear Optimization (IPB) NonLinear Optimization	20	20	20 (TUIasi)	
(TUIasci + IPB)	20	15	20 (TUIasi)	
Probability Real functions of single	27	27	27 (KTU)	
variables Domain, Image and Graphics				
(UniGe)	12	12	12 (KTU)	
Limits and Continuity (UniGe)	8	8	8 (KTU)	<u> </u>
Real functions of several variables				
Limits, Continuity, Domain and Image (TUIasci + IPB)	22	22	22 (LIT)	A
Set Theory (IPB)	19	19	18 (IPB)	8
Statistics (KTU)	20	20	20 (IPB)	
IO1: Studen • 15 January 2021	t's Assessn Deadl		it 12/12	
Review questions for fi	inal assessmen	nt		
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Intelle	ectual	Outp	ut 2	
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Lessons and	ııedC	riiiig	iviate	11015
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				4-16

IO2: Online Math Library of Video Lessons 1/7

Actions to be Carried Out

IO2.1) Creation of all templates needed for carrying out the activities $% \left(1\right) =\left(1\right) \left(1\right) \left($	1 April 2019 30 April 2019
IO2.2) Identification and review of existing videos	1 May 2019 31 August 2019
IO2.3) Production/adaptation of video lessons	1 September 2019 31 January 2020
IO2.4) Production/adaptation of teaching material	1 February 2020 30 May 2020
IO2.5) Review the proposed materials	1 June 2020 30 September 2020



IO2: Online Math Library of Video Lessons 2/7 **Templates and Tools**

- IO2.A Existing Video Review
- IO2.B Video Lessons
- IO2.C Video_Begin
- IO2.D Video_End
- IO2.E Guidelines for YouTube Channel
- IO2.F Teaching Material





IO2: Online Math Library of Video Lessons 3/7

Expected Results

- Identification and review, by HEIs, of 5 existing videos for each of the assigned topics or subtopics
- Production/adaptation, by HEIs*, of 5 video lessons for each of the
- Production/adaptation, by each partner, of 10 Teaching material (podcast, pdf, ...) for each of the 2 assigned topics
- * EuroED will take care of the video editing of the Romanian video lessons



IO2: Online Math Library of Video Lessons 4/7

Current Results/Video Reviews

Uploaded Reviews

Partner	To be evaluated	Approved	Submitted
IE_LIT	0	10	10
IT_UniGenova	0	9	10
LT_KTU	0	12	12
PT_IPB	0	91	96
RO_Unilasi	0	8	14
Tot	0	129	141



IO2: Online Math Library of Video Lessons 5/7

Current Results/Video Lessons

Uploaded Video Lessons

Partner	To be evaluated	Approved	Submitted
IE_LIT	1	7	10
IT_UniGenova	0	10	10
LT_KTU	3	10	10
PT_IPB	0	10	22
RO_Unilasi	1	9	12
Tot	0	46	50



IO2: Online Math Library of Video Lessons 6/7

Current Results/Teaching Resources

Uploaded Teaching Resources

Partner	To be evaluated	Approved	Submitted
IE_LIT	0	20	20
IT_UniGenova	0	20	20
LT_KTU	3	15	22
PT_IPB	0	59	69
RO_Unilasi	0	0	0
Tot	3	115	132





IO2: Online Math Library of Video Lessons 7/7 **Deadlines** • 15 January 2021 LIT (IE), Unlasi (RO) Upload missing video lessons • 15 January 2021 KTU (LT), Unilaisi (RO) Upload missing teaching resources **Intellectual Output 3 Community of Practice** IO3: Community of Practice ... 2/4 **Templates and Tools** • IO3.A – Structure of the Community • IO3.B – Good Practice Form

IO3: Community of Practice ... 3/4

Expected Results

- Active Community of Practice
- Identification of good practices
- Online guidebook of good practices



IO3: Community of Practice ... 3/4

Current Results

- Students' Community available at https://student-mathe.pixel-online.org
 Lecturers' Community available at https://teacher-mathe.pixel-online.org
 Both communities support insertions of math functions according to
- https://katex.org/docs/supported.html



IO3: Community of Practice ... 3/4

Current Results

Discussions For Lecturers' Community

- Experiments using MathE (Ana IPB)
- Motivational tips in Math Subjects (Marcel Unilasi)
 Scientific publications in Math Educational (Arvid UniGe)
- Math teaching tools (Marie LIT)
- Activities using Activity-Based Learning (Kristina KTU)

Discussions For Students' Community • Topics on MathE (Fatima - IPB)

Possible tags
#MadhE suggestions; #finalassessment; #teach; #TELbased;
#Bedissassment; #games; #Videos; #learn;
#education; #inquirybased; #projectbased;
#Fippedclassroom
Contribute to the list of TAGS:
https://docs.goagie.com/spreadsheets/d/3RyBu_EypqkivMWjuKnHcDayAlaBNE6WpJocks #GOleRicbus=bating



1	1
1	4

IO3: Community of Practice ... 4/4 Deadlines 15 January 2021 Pikeland EuroED Production of template for good practice 15 January 2021 HEIS Suggest tags for discussions 15 March 2021 AI HEIS Identification of 2 good practices and upload them on the forum dedicated to "Experiments using Mathé" 30 April 2021 EuroEd (RO) Guidebook Edition

Multiplier Events



Multiplier Events1/4

Actions to be Carried Out

- Organisation of a 5 dissemination events at national level on the:
 - Student's Assessment Toolkit
 - Online Math Library of Video Lessons and Teaching Materials
 - Community of Practice



Multiplier Events 3/4 **Templates and Tools** ME.1 – Multiplier Event Description ME.2 – Multiplier Event Programme ME.3 – Multiplier Event List of Participants ME.4 – Multiplier Event Minutes Multiplier Events 2/4 **Expected Results** • 4 dissemination events LIT (IE), UniGenova (IT), KTU (LT), TUlasi (RO) involvement of 20 lecturers/researchers/teachers/policy makers (only participants from organisations other than the beneficiaries) • Project Final Conference: IPB (PT) involvement of 40 participants lecturers/researchers/teachers/policy makers (only participants from organisations other than the beneficiaries) Multiplier Events 4/4 **Deadlines** • 15 April 2021 HEIs Decision about the multiplier event • 30 June 2021 HEIs Sending of documents related to the multiplier events

Training Activity C1 – Training course **Objectives of the Training Course** How to identify and assess students gaps in Math How to create effective TEL and digital based teaching sources for Math • How to cooperate with international colleagues in the Community of Practice > Training will have a total duration of 40 hours, including individual work by > Certification: ECTS credits according to the duration of the training cours C1 – Training course Training course schedule 14 – 18 June 2021 • DAY 1: Monday 14h-19h • DAY 2: Tuesday 09h-13h and 14h-17h • DAY 3: Wednesday: 09h-13h • DAY 4: Thursday 09h-13h and 14h-17h • DAY 5: Friday: 09h-13h

C1 – Training course

Teamwork methodogies

- Thematic Topics

 Assessment methods
 E-Learning Tools and Strategies
 Methodologies to teach math
 Strategies to learn math

> Can include case studies in each topic

- Each HEI will contribute with at least 2 lecturers, who should not be concentrated on just one topic.
- Each topic should have a team between 3 5 participants.

Partner	Participants	
IE_LIT	>2?	
IT_UniGenova	>2?	
LT_KTU	>2?	ę
PT_IPB	5 - 15	
RO_Unilasi	>2?	





C1 – Training course

Schedule

Day 1 - Monday

- 14h 15h: Welcome and registration
 - Participants presentation || Team building
- 15h 17h: Literature review
- 17h 18h: Presentation of the literature review. Reflection || Improve || Suggestions
- 18h 19h: Talk 1 || Discussion and brainstorm







Schedule

Day 2 - Tuesday

- 09h-10h: Talk 2 || Discussion and Brainstorm
- 10h- 13h: Literature review
- 13h-14h: Lunch time
- 14h-16h: Writing time
- 16h-17h: Talk 3 || Discussion and Brainstorm





C1 – Training course

Schedule

Day 3 - Wednesday

- 09h-10h: Lecture about e-learning strategies
- 10h-11h: Lecture about assessment methods
- 11h-12h: Lecture about methodologies to teach math
- 12h-13h: Lecture about strategies to learn math



C1 – Training course

Schedule

Day 4 - Thursday

- 09h-10h: Talk 4 || Discussion and Brainstorm
- 10h-13h: Writing time Conclusion of the papers
- 13h-14h: Lunch time
- 14h-16h: Papers review by the other teams
- 16h-17h: Talk 5 || Discussion and Brainstorm





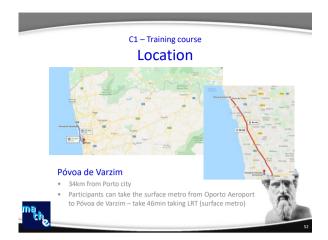
C1 – Training course

Schedule

Day 5 - Friday

- **09h-11h:** Conclude the scientific material
- 11h-12h: Evaluation procedures (participants & training course)
- 12h-13h: Closing session





C1 – Training course LOCATION Axis Vermar Conference and Beach Hotel – Póvoa de Varzim https://www.axishoteis.com/pt/Axis-Hoteis/Hoteis/Axis-Vermar/O-Hotel.aspx Hotel with indoor pool, spa, massages, Near of the beach 1.3 km from the city center

C1 – Training course Location Axis Vermar Conference and Beach Hotel Póvoa de Varzim Individual Room – 300 euros Double Room – 200 euros per person Include: 4 nights with breafast included 2 lunches (Tuesday+Thursday) 4 coffee breaks 1 spa day

C1 – Training course **Template and Tools** TA.1 – Register TA.2 – Programme TA.3 – Certificate TA.4 – Contents for the Mobility Europass TA.5 – Participants Profile TA.6 - Report C1 – Training course Deadlines 1/2 15 April 2021 Decision about the training activity Definition of the Contents for the Europass 31 January 2021 Identify the participants in the training activity and thematic topic, hotel reservation Contact the National Europass Centre (<u>link</u>) to activate the Europass Mobility for each participant HEIs Elaborate some individual literature review C1 – Training course Deadlines 2/2 • 12 – 16 April 2021 Delivery of the training activity and sending to Pixel of the related material (register and report on the training activity) Sending to Pixel of supporting documents (Report on the training activity, Register of participants, Programme, Certificates)

• 15 May 2021

methodology

Sending to Pixel of supporting documents: copies of the Europass certificates, description of the participants profiles and selection

Project Management PM1 - Coordination of activities PM1 - Coordination of activities 1/5 Actions to be Carried Out Attendance to the partners meeting 1st Meeting: Florence (IT), October 2018 2nd Meeting: Kaunas (LT), May 2019 3rd Meeting: Limerick (IE), December 2019 4th Online Meeting: 21 December 2020 5th Meeting: Braganca (PT), 14 – 15 June 2021 • Production of project reports PM1 - Coordination of activities 2/5 **Templates and Tools** PM1.D – In progress activities reports PM1.E – Financial Manual (external annex) PM1.F – Financial Forms PM1.G - Template of Mobility Declaration

PM1 - Coordination of activities 3/5

Expected Results

Production of:

- Three months period online Activities Reports
- Yearly Financial Report



PM1 - Coordination of activities 4/5

Current Results

Partner	Online Activity Reports
IE_LIT	Updated 30 November 2020
IT_Pixel	Updated 30 November 2020
IT_UniGenova	Updated 30 November 2020 but PM
LT_KTU	Updated 20 December 2020
PT_IPB	Updated 30 November 2020
RO_EuroED	Updated 30 November 2020
RO_Unilasi	Updated 30 November 2020



PM1 - Coordination of activities 5/5

Deadlines

All partners

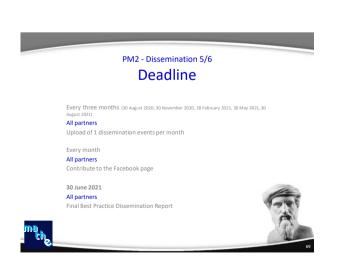
- Every three months (30 August 2020, 30 November 2020, 28 February 2021, 30 May 2021, 30 August 2021)
 Production of Activities Report Forms
- 15 September 2021



Project Management PM2 - Dissemination PM2 - Dissemination 1/6 Actions to be Carried Out Organization of at least 1 dissemination event on the project every month Production of the best practice dissemination report Production of transnational dissemination report Mobile version of the web site PM2 - Dissemination 2/6 **Templates and Tools** • PM2.A – In progress dissemination reports PM2.B – How to write the Best Practice Dissemination Report

PM2 - Dissemination 3/6 Expected Results Project Brochure in all partners languages Database of dissemination events on the portal Facebook Page National Best Practice Dissemination Report Transnational Dissemination Report

PM2 - Dissemination 4/6 Current Results Partner Dissemination Events IE_LIT 26 IT_Pixel 84 IT_UniGenova 25 LT_KTU 32 PT_IPB 41 RO_EuroED 41 RO_Unilasi 17



Project Management PM3 - Exploitation PM3- Exploitation 1/4 Actions to be Carried Out Involvement in the project of associated partners Collection of exploitation links PM3- Exploitation 2/4 **Templates and Tools** - PM3.A - Associated Partner Letter - PM3.B - Associated Partner Information - PM3.C - Exploitation links

PM3: Exploitation 4/4 Deadlines 20 January 2021 Uniasi (R0) Involvement of 3 associated partners Collection of 3 exploitation links 30 June 2021 All Partners Involvement of a total number of 6 associated partners Collection of a total number of 6 exploitation links

Project Management PM4 - Quality and **Monitoring Plan** PM4: Quality and Monitoring Plan 1/4 Actions to be Carried Out Collection of testimonials Production of testing evaluation report Production of transnational evaluation report PM4: Quality and Monitoring Plan 2/4 **Templates and Tools** • PM4.A – Quality Plan • PM4.B – Project Meeting Evaluation Questionnaire (partners) • PM4.C – Project Evaluation Questionnaire (partners) • PM4.D – Evaluation Questionnaires for Intellectual Outputs (end users) • PM4.E – Tool for questionnaires analysis • PM4.F – How to write the Evaluation Report on Intellectual Output

PM4: Quality and Monitoring Plan 3/4 **Expected Results** 3 issues of the Quality Plan 6 testimonials per country 20 evaluation questionnaires per country 1 Testing Evaluation Report per country TA4: Quality and Monitoring Plan 4/4 **Deadlines** 15 June 2021 All Partners Collection of 6 testimonials Collection of 20 evaluation questionnaires Sending of evaluation report on the IOs Thank you for Your Attention Questions?