

The Big Book

of online education



for academics
and other teaching
professionals

Gdańsk 2024

GDAŃSK UNIVERSITY OF TECHNOLOGY PUBLISHERS

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About the E-Tech project

E-TECH, or Comprehensive Project for Distance Teaching Skills and Multimedia Resources for Technical Universities in Europe (2020-1-PL01-KA226-HE-096375) is a project founded by the Erasmus+ Strategic Partnership programme



Funded by
the European Union
Humanitarian Aid

The global digital education market is growing at an incredible rate. It enters rapidly not only into homes, businesses and corporations but also into academia, which has to compete with commercial forms of education. The fast adoption of online learning has been greatly helped by the pandemic and enforced social distance. In addition, today's generation of students, especially at technical universities, is increasingly demanding with regard to teaching materials: they expect dynamism, a digital approach and very good visual quality. All of this means that higher ed teachers (with special focus on STEM) need to acquire new skills very quickly. Among the most important competencies are: methodical, design and technical skills to be able to design online education and create e-learning courses at a high quality.

Help is at hand from researchers at the **Gdańsk University of Technology** who, in collaboration with the **Austrian University of Applied Sciences FH JOANNEUM Gesellschaft mbH** in Graz and the Italian **Università Politecnica delle Marche** in Ancona, and with support from **SEA – the Polish Academic E-learning Association**, have set out to develop practical materials and multimedia resources to help teachers across Europe design engaging online education for their students. You can find a full list of great experts who contributed to creating this book at the end of this publication.

The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect 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.

Many thanks to all those who contributed to this publication.



Photo: Joanna Szakola

Whether we like it or not, the future belongs to hybrid education. Teaching STEM online causes many problems and challenges. We asked a group of experienced academic teachers to share their ways of doing this effectively. I believe such knowledge is invaluable. I recommend reading our book to anyone with a big heart for students and education.

Marek Chodnicki, PhD – E-Tech Project Manager

Writing a friendly book that is full of practical advice, examples and tips is not easy at all. We have tried very hard to ensure that every teacher will find something of value in our publication and will feel inspired to try out new teaching methods. I hope we managed to do it well! Enjoy your reading and good luck!

Alina Guzik, MSc – E-Tech Product Manager

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Apps and tools collection

Canva	https://www.canva.com/pl_pl/ , www.youtube.com/@canva
Dropbox	https://www.dropbox.com/pl/
Genial.ly	https://genially.com/higher-education/
Google Drive	https://drive.google.com/drive/my-drive
Google Workspace (Docs, Slides and Sheets)	https://workspace.google.com/intl/pl/
Kahoot!	https://kahoot.com/
Mentimeter	https://www.mentimeter.com/
Microsoft Office (OneDrive, SharePoint)	https://www.office.com/
Miro	https://miro.com/pl/product-overview/
Socrative	https://www.socrative.com/
Thinglink	https://www.thinglink.com/

Artificial intelligence in education

Asana	https://asana.com/
ChatGPT	https://openai.com/chatgpt/
Cloud Speech-to-Text	https://cloud.google.com/speech-to-text
Curipod	https://curipod.com/
DALLE2	https://openai.com/index/dall-e-2/
DeepL	https://www.deepl.com/pl/translator
Eskritor	https://eskritor.com/pl/
Grammarly	https://www.grammarly.com/
NighCafe Presentation	https://creator.nightcafe.studio/
Otter	https://otter.ai/
SlidesAI	https://www.slidesai.io/pl
Sloyd	https://www.sloyd.ai/
Smodin	https://smodin.io/pl
Synthesia	https://www.synthesia.io/
Yippity	https://yippity.io/

E-books and interactive books, podcasts

Audacity	https://www.audacityteam.org/
Canva	https://www.canva.com/pl_pl/ , www.youtube.com/@canva
Dreamstime	https://pl.dreamstime.com/

Kotobee	https://www.kotobee.com/
Moodle	https://www.youtube.com/@moodle , https://moodle.org/
Soundsnap	https://www.soundsnap.com/
Spotify	https://open.spotify.com/
Vimeo	https://vimeo.com/

Forums

Discourse	https://www.discourse.org/
Forum in Moodle	https://docs.moodle.org/404/en/Forum_activity
MyBB	https://mybb.com/
phpBB	https://www.phpbb.pl/
WordPress	https://pl.wordpress.org/

Game based learning

Central	https://central.com/
DxR Nursing SELECT	https://dxrgroup.com/healthcare-education-products/dxr-nursing-select/
EdApp	https://training.safetyculture.com/
Gametize	https://corp.gametize.com/
Hoopla	https://www.hoopladigital.com/
Raptivity	https://www.raptivity.com/
Resimion	https://resimion.com/
VirtualPT Clinician	https://dxrgroup.com/healthcare-education-products/virtualpt-clinician/

Online assessment

ClassFlow	https://classflow.com/
Free Online Surveys	https://freeonlinesurveys.com/
iSpring	https://www.ispringsolutions.com/ispring-free , www.youtube.com/@iSpringPro
Kahoot!	https://kahoot.com/
Mentimeter	https://www.mentimeter.com/
Moodle quizzes	https://docs.moodle.org/404/en/Building_Quiz
Nearpod Silver Edition	https://nearpod.com/pricing
Poll Everywhere	https://www.polleverywhere.com/
Quizizz	https://quizizz.com/?lng=pl
Quizlet	https://quizlet.com/pl
Socrative	https://www.socrative.com/
Survey Monkey	https://www.surveymonkey.com/

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Online creative work

ChatGPT	https://openai.com/chatgpt/
Microsoft Whiteboard	https://www.microsoft.com/pl-pl/microsoft-365/microsoft-whiteboard/digital-whiteboard-app
MURAL	https://www.mural.co/ , www.youtube.com/@MuralTV
The Noun Project	https://thenounproject.com/

Online mind maps, infographics and sketch notes

Canva	https://www.canva.com/pl_pl/ , www.youtube.com/@canva
Coggle	https://coggle.it/
Easel.ly	https://easel.ly/
GitMind	https://gitmind.com/
Infogram	https://infogram.com/
Mindmeister	https://www.mindmeister.com/
Miro Map Maker	https://miro.com/pl/concept-map/
Piktochart	https://piktochart.com/home/?nab=1
Venngage	https://venngage.com/
Visme	www.youtube.com/@VismeApp
Wondershare EdrawMind	https://edrawmind.wondershare.com/

Online teaching in STEM and mathematics

Automation Studio	www.famictech.com/en/Products/Automation-Studio
B&R Industrial	
Automation GmbH	www.br-automation.com/en/academy/classroom-learning/
Code.org	https://code.org/
GeoGebra	https://www.geogebra.org/
LTSpice, EE-sim	www.analog.com/en/design-center.html
MapleSim	www.maplesoft.com
Mashup Math	https://www.mashupmath.com/
MathWorks	https://www.mathworks.com/
MatLAB	https://www.mathworks.com/products/matlab.html
MATLAB® Grader™	https://grader.mathworks.com/
Maxima	https://maxima.sourceforge.io/
Microsoft Power	https://www.microsoft.com/pl-pl/power-platform
Photomath	https://photomath.com/
Python	https://www.python.org/
RoboAnalyzer	www.roboanalyzer
RobotBenchmark	www.robotbenchmark.net
RobotDK	www.robodk.com
ROS	
(Robot Operating System)	https://www.ros.org/

Simulink	https://www.mathworks.com/products/simulink.html
SunSpire	www.sunspire.site
Webots	www.cyberbotics.com
WolframAlpha	https://www.wolframalpha.com/

Online team work

Google Workspace	https://workspace.google.com/intl/pl/
Miro	https://miro.com/pl/product-overview/
Slack	https://slack.com/
Trello	https://trello.com/

Peer and self-assessment

CLAS (Collaborative Learning Annotation System)	https://clas.ubc.ca/
ComPAIR	https://www.compair.com/pl-pl/
Moodle	https://www.youtube.com/@moodle , https://moodle.org/
peerScholar	https://www.peerscholar.com/

Personalisation

Alta	https://www.adaltatutoring.com/
Area9Lyceum	https://area9lyceum.com/
ASSISTment	https://new.assistments.org/
Domoscio	https://domoscio.com/en/
Knewton	https://support.knewton.com/s/
Lalilo	https://lalilo.com/
Mathia	https://www.carnegielearning.com/solutions/math/mathia/
Toppr	https://www.toppr.com/guides/
Woonoz	https://www.woonoz.com/en/

Project based learning

GitHub	https://github.com/
MatLAB	https://www.mathworks.com/products/matlab.html
Microsoft Teams	https://www.microsoft.com/pl-pl/microsoft-teams/group-chat-software
Moodle	https://www.youtube.com/@moodle , https://moodle.org/

Social media learning

Discord	https://discord.com/
Slack	https://slack.com/
Twitch	https://www.twitch.tv/
Facebook, Instagram, TikTok, YouTube	

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Teacher – student relationship

Blogger	https://www.blogger.com/about/?bpli=1
Canva	www.youtube.com/@canva
Flip	https://info.flip.com/en-us.html
Google Slides	https://workspace.google.com/intl/pl/products/slides/
Learning Management System (LMS)	https://www.techtarget.com/searchcio/definition/learning-management-system
Linoit	https://en.linoit.com/
Mentimeter	https://www.mentimeter.com/
Messenger	https://www.messenger.com/
Mindmup	https://www.mindmup.com/
OneNote	https://www.onenote.com/?public=1&wdorigin=ondcauth2&wdorigin=ondc
Padlet	https://padlet.com/
Panopto	https://www.panopto.com/
Quizlet	https://quizlet.com/pl
Socrative	https://www.socrative.com/
Symbaloo	https://www.symbaloo.com/home/mix/13ePBdQhSP
WhatsApp	https://www.whatsapp.com/?lang=pl_PL

Video & graphics editing tools

Adobe Photoshop	https://www.adobe.com/pl/products/photoshop.html
Adobe Premiere Pro	https://www.adobe.com/pl/products/premiere.html
Audacity	https://www.audacityteam.org/
Canva	www.youtube.com/@canva
Davinci Resolve	https://www.blackmagicdesign.com/pl/products/davinciresolve
GIMP	https://www.gimp.org/
Kaltura	https://corp.kaltura.com/
Movavi	https://www.movavi.com/
Pixlr	https://pixlr.com/pl/

Video lectures, e-quizzes, presentations

Adobe Connect	https://www.adobe.com/products/adobeconnect.html
Adobe for Education	www.youtube.com/@AdobeForEducation
Apowersoft	https://www.apowersoft.com/free-online-screen-recorder
Blackboard	https://www.blackboard.com/
Free Online Surveys	https://freeonlinesurveys.com/
Genial.ly	https://genially.com/higher-education/
Google Classroom	https://classroom.google.com/
Google Forms	https://www.google.pl/intl/pl/forms/about/

Google Slides	https://workspace.google.com/intl/pl/products/slides/
Hot Potatoes	https://hotpot.uvic.ca/
iSpring	https://www.ispringsolutions.com/ispring-free , www.youtube.com/@iSpringPro
Jotform	https://www.jotform.com/pl/
Loom	https://www.loom.com/
Microsoft Whiteboard	https://www.microsoft.com/pl-pl/microsoft-365/microsoft-whiteboard/digital-whiteboard-app
Microsoft PowerPoint	https://www.microsoft.com/pl-pl/microsoft-365/powerpoint
Prezi	https://prezi.com/
Screencast-O-Matic	https://screenpal.com/
Testportal	https://www.testportal.net/
Verbal to Visual	https://verbaltovisual.com/ , www.youtube.com/@verbaltovisual
Vsauce	https://www.vsaauce.com/#/ , https://www.youtube.com/VSAUCE
Zoom	https://zoom.us/pl

Webinars

ClickMeeting (not free)	https://knowledge.clickmeeting.com/knowledge-base/first-steps/free-trial/
GoToWebinar (not free)	https://support.goto.com/webinar/help/how-much-does-goto-webinar-cost
Livestorm	https://livestorm.co/
Microsoft Teams	https://www.microsoft.com/pl-pl/microsoft-teams/group-chat-software
Panopto	https://www.panopto.com/
Webinar Geek	https://www.webinargeek.com/
Zoom	https://zoom.us/pl

XR technologies, cyber-physical laboratories

3spin Learning	https://www.3spin-learning.com/en/
Avantis World	https://www.avantisworld.com/
CATIA	https://www.3ds.com/products/catia
CoSpaces Edu	https://www.cospaces.io/
FreeCAD	https://www.freecad.org/
LabVIEW	https://www.ni.com/en/shop/labview.html
MatLAB	https://www.mathworks.com/products/matlab.html
MicroPython	https://micropython.org/
Micro-ROS	https://micro.ros.org/
PIXO VR	https://pixovr.com/
Rhinoceros	https://www.rhino3d.com/

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ROS

(Robot Operating System) <https://www.ros.org/>

Simulink <https://www.mathworks.com/products/simulink.html>

Unity Real-Time

Development Platform <https://unity.com/>

Virtual Reality Training

Solutions (VRTS) <https://vrts.ca/>

Other useful websites, channels and tools

British Council <https://www.britishcouncil.org/>, www.youtube.com/@britishcouncil

MIT OpenCourseWare www.youtube.com/@mitocw

TEDx Talks www.youtube.com/@TEDx

U of G Library www.youtube.com/@UoGLibrary

ClassPoint www.youtube.com/@ClassPoint

Dr. Jacob Goodin www.youtube.com/@DrJacobGoodin

Helix Education www.youtube.com/@helixeducation1653

Instructional

Media Design www.youtube.com/@MediaLearningDesign

Interact www.youtube.com/@tryinteract

Jason Whaling www.youtube.com/@JasonAWhaling

John Spencer www.youtube.com/@spencereducation

Kevin Stratvert www.youtube.com/@KevinStratvert

LSU online www.youtube.com/@LSUOnline

Ma. Israel S. Lopez www.youtube.com/@MalsraelleSLopez

McGraw Hill PreK-12 www.youtube.com/@McGrawHillEducationSchool

MIND Education www.youtube.com/@MIND_Education

Mr. Cook's Corner www.youtube.com/@MrCooksCorner

Netval www.youtube.com/@netval5648

Pod Sound School www.youtube.com/@podsoundschool

Project Based

Learning Works www.youtube.com/@BIEPBL

Slido www.youtube.com/@Slido

Sprouts www.youtube.com/@sprouts

Teach Smart With Fay www.youtube.com/@TeachSmartWithFay

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