



Development and Implementation of MDTV Curricula (DIMTV)

WP 2.3 - Activity 2.3.6 Report

Preparing teaching materials and instructions

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1. Introduction

In the scope of Work Package 2.3, the partner institutions have prepared several learning modules to innovate their curricula, follow the trends, and demand in the labor market. This document includes the teaching and learning materials list, used in these learning modules.

The presentation of teaching and learning materials is organized in individual partner sections.



2. Development of teaching and learning materials per partner institution

2.1 Epoka University

Epoka University is a private Higher Education Institution in Albania that has a bachelor and master's degree in "Electronics and digital communication engineering" and "Computer Engineering". To meet expectations requirements of the labor market in Albania for higher qualified experts in the field of Multimedia and Digital Television, Epoka University has introduced an image processing module for bachelor and master, in both two study programs, following Erasmus+ project "Development And Implementation Of Multimedia and Digital Television Curricula (DIMTV)".

Through this project, Epoka University has innovated its actual master and bachelor curricula by developing and implementing specialized modules. All the materials used for the three courses offered are available for the students online at www.lms.epoka.edu.al where they can enter and download them at any time. The courses include homework, projects, assignments, presentations by the students, and midterm and final exams for evaluation. The book and lecture notes are distributed to all the students and the syllabus is in line with the top universities of the world, following best practices. The materials are available for review at the partner institution.

Digital Image Processing, due to the COVID-19 situation, is currently offered online in live streaming which is also registered and shared with the students.

Table 1. List of books to be purchased for Epoka University

No.	List of ICT/DIMTV books to support bachelor and master curriculum	Copies
1	Unity Virtual Reality Projects: Explore the world of virtual reality by building immersive and fun VR projects using Unity 3D	4
2	Digital Image Processing (4th Edition)	3
3	Learning OpenCV 3: Computer Vision in C++ with the OpenCV Library	4
4	Introduction to Fourier Optics	3
5	Engineering Optics With Matlab°	3
6	Learning Processing: A Beginner's Guide to Programming Images, Animation, and Interaction (The Morgan Kaufmann Series in Computer Graphics)	3
7	Computer Graphics: Principles and Practice	3
8	The Image Processing Handbook,	4

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9	Modern Assembly Language Programming with the ARM Processor	3
10	FPGA-Based Embedded System Developer's Guide	3
11	FPGA-based Implementation of Signal Processing Systems	3
12	Dynamic Mode Decomposition: Data-Driven Modeling of Complex Systems	3
13	Data-Driven Science and Engineering: Machine Learning, Dynamical Systems, and Control	3
14	Digital Design Global Edition	3
15	Biomedical Information Technology 2 nd Edition	3
16	Deep Learning for Medical Image Analysis, 1st Edition	3
17	Unsupervised Learning in Space and Time	3
18	Hyperspectral Image Analysis	3
19	Project Management: A Systems Approach to Planning, Scheduling, and Controlling	1
20	Managing innovation (6th edition)	1

2.2 UAMD University

Aleksandër Moisiu University, Durrës is the only public institution of higher education that offers studies at the Bachelor level in the field of multimedia technologies and digital television. This Bachelor study program was opened in 2012 as a result of the TEMPUS RICUM project. The “*Multimedia and Digital Television*” program is unique in Albania and the only one that can provide human resources to fulfil market needs and will influence the increase of the number of experts and professionals in this field and also increase the quality of production media.

The Faculty of Information Technology, Department of Information Technology following Erasmus+ project Development And Implementation Of Multimedia and Digital Television Curricula (***diMTV***) started the procedures in the academic year 2017-2018, to open the Professional Master program in collaboration with seven other national institutions and with three specific directions such as:

- 3D Animation
- Image Processing
- Production and post-production

All courses in curricula are taught using contemporary teaching methods, such as problem-based learning, game-based learning, case study method, etc. Courses are organized using the blended learning concept – a combination of traditional and e-learning concepts. To enable efficient and effective teaching and learning, a multimedia lab as a recording studio is equipped with modern hardware and software tools for producing and editing.

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Based on the national technology development strategies, AMU Strategy Development Planning, and increasing the high rate of ICT penetration in teaching, the implementation of virtual teaching, gaming and e-learning are becoming more and more urgent. These alternative methods aim to increase equal education opportunities, giving students more flexibility to combine teaching with work, family, and community, the quality of the content of didactic teaching materials which are increasingly available online.

All course materials and activities are available to students. Teaching materials are prepared in line with European, national and institutional standards and practices. They are prepared in the form of printed lecture notes and electronic materials (presentations, teaching notes, etc.). For some specific topics, instructions for teaching and practices will be prepared in the form of video tutorials for students.

Currently, the teaching materials are printed and kept at the Department of Information Technology, they are not published online. The list of the books planned to be purchased for teaching purposes are as follows:

Table 2. List of books to be purchased for UAMD

No.	Title	Author	Publisher
1	Mathematics for Computer Graphics	John Vince	Springer
2	Mathematics for 3D Game Programming and Computer Graphics	Eric Lengyel	Cengage Learning
3	The Filmmaker's Guide to Visual Effects: The Art and Techniques of VFX for Directors, Producers, Editors and Cinematographers	Eran Dinur	Routledge
4	Stop Motion: Craft Skills for Model Animation, 3rd Edition	Susannah Shaw	Routledge
5	Visual Storytelling: Videography and Post Production in the Digital Age	Ronald J. Osgood M. Joseph Hinshaw	Cengage Learning
6	Digital Image Processing using Matlab	R. C. Gonzales	Pearson
7	Advances in Biometrics: Modern Methods and Implementation Strategies	G.R. Sinha	Springer
8	Complete Virtual Reality and Augmented Reality Development with Unity	Jesse Glover Jonathan Linowes	Packt Publishing
9	Holography: Principles and Applications	Raymond K. Kostuk	CRC Press
10	Creating Augmented and Virtual Realities	Erin Pangilinan Steve Lukas Vasanth Mohan	O'Reilly Media
11	Computer Vision: Principles, Algorithms, Applications, Learning, 5th edition	E. R. Davies	Academic Press
12	Signals and Systems using MATLAB, 3rd edition	Luis Chaparro Aydin Akan	Academic Press

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13	Stop Motion Filmmaking: The Complete Guide to Fabrication and Animation	Christopher Walsh	Bloomsbury Academic
14	The complete guide to Blender Graphics	John M. Blain	CRC press
15	Adobe Audition CC Classroom in a book	Maxim Jago	Adobe Press
16	Blender 3D By Example: Design a complete workflow with Blender to create stunning 3D scenes and films step-by-step!	Romain Caudron, Pierre-Armand Nicq	Packt Publishing
17	Maya Visual Effects The Innovator's Guide: Autodesk Official Press; 2nd edition	Eric Keller	Sybex
18	Cinema 4D: The artists' project sourcebook	Anne Powers	Focal Press
19	Immersive Sound: The Art and Science of Binaural and Multi-Channel Audio	Agnieszka Roginska Paul Geluso	Routledge
20	Cinematography: Theory and Practice: Image Making for Cinematographers and Directors	Blain Brown	Routledge
21	The Video Editing Handbook	Aaron Goold	Independently published
22	Project Management: A Managerial Approach; 10 edition	Jack R. Meredith; Samuel J. Mantel Jr.; Scott M. Shafer	John Wiley & Sons
23	Information Technology Project Management, 9th Edition	Kathy Schable	Cengage
24	Microsoft Project 2019 for dummies	Cynthia Snyder Dionisio	For Dummies
25	Unity for Absolute Beginners	Sue Blackman	Apress
26	Electroacoustic Devices: Microphones and Loudspeakers	Glen Ballou	Focal Press
27	Audio in Media	Stanly R. Alten	Wadsworth publishing
28	Handbook for Sound Engineers, 5th Edition	Glen Ballou	Routledge
29	Television Production Handbook, 12th edition	Herbert Zettl	Wadsworth Publishing
30	Light Science & Magic: An Introduction to Photographic Lighting; 5 edition	Fil Hunter; Steven Biver; Paul Fuqua	Routledge
31	Digital Photography Masterclass: Advanced Photographic Techniques for Creating Perfect Pictures	Tom Ang	DK; Reprint edition
32	Adobe Creative Suite design and Web Premium digital in the classroom	Conrad Chavez	Wiley
33	Graphic Design: Learn it do it	Katherine A. Hughes	CRC press
34	Adobe After Effects CC Classroom in a Book; 2nd edition	Lisa Fridsma; Brie Gyncild	Adobe Press
35	The Beginner's Guide to DaVinci Resolve 16: Learn Editing, Color, Audio & Effects	Dion Scoppettuolo Paul Saccone	Blackmagic Design
36	Computer Graphics: Implementation and Explanation	Jules Bloomenthal	Independently published
37	The Animator's Survival Kit: A Manual of Methods, Principles and Formulas for Classical, Computer, Games, Stop Motion and Internet Animators, 4th Edition	Richard Williams	Farrar, Straus and Giroux;
38	Spatial Audio Reproduction with Primary Ambient extraction	Jian Jun He	Springer Singapore
39	Frontiers of Multimedia Research	Shih Fu Chang	ACM Book

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40	Understanding Movies	Luis Giannetti	Pearson
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2.3 University of Prishtina (UP)

At the University of Prishtina UP they have modernized, revised, and updated the existing study programs by developing and integrating certain modules from the DIMTV field. Consequently, the following literature is foreseen and has been purchased for the updated (DiMTV) study programs.

Table 3 List of books to be purchased for UP

No.	List of ICT/DIMTV books to support bachelor and master curriculum
1	Manolakis D. G., Ingle V. K., "Applied Digital Signal Processing: Theory and Practice", Cambridge University Press, New York, 2011
2	Kurose, J. F., & Ross, K. W. (7th Edition) (2016). Computer networking: a top-down approach.
3	Travis F. Collins, Robin Getz, Di Pu, and Alexander M. Wyglinski, "Software-Defined Radio for Engineers" Artech House, ISBN-13: 978-1-63081-457-1, 2018
4	T Roupael. "Rf and Digital Signal Processing for Software Defined Radio" Elsevier 2009
5	Michel C. Jeruchim, Philip Balaban, K. Sam Shanmugan, "Simulation and Software Radio for Mobile Communications", ISBN: 1580530443, Artech House (Fitchburg, MA, USA), 2002.
6	Essential skills for 3D modeling, rendering, and animation. NB. Zeman
7	Lightning Fast Animation in Element 3D: Master the intricacies of Element 3D, the fast rendering Adobe After Effects plugin. Ty Audronis, Packt Publishing, 2014. ISBN: 978-1-78355-938-1.
8	Andreas F Molisch, "Wireless Communications" - Wiley - IEEE, 2nd Edition, © 2011 John Wiley & Sons Ltd.
9	Digital Image Processing: Practical Approach. B. Furht, E. Akar, A. Andrews, Springer 2018, ISBN: 3319966332, 9783319966335
10	Computer Vision, Pattern Recognition, Image Processing, and Graphics. R. Rameshan, C. Arora, SD. Roy, Springer Singapore 2018, ISBN: 978-981-13-0019-6, 978-981-13-0020-2
11	Mastering Autodesk Maya 2016: Autodesk Official Press. T. Palamar, Sybex 2015. ISBN-10: 1119059828, ISBN-13: 978-1119059820.
12	Samuel J. Mantel Jr., Jack R. Meredith, Scott M. Shafer "Project Management: A Strategic Managerial Approach," Wiley; 10 th edition, Dec. 2017, ISBN-13: 978-1119369097.
13	David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Rob Barton, Jerome Henry (2017.), IoT Fundamentals, Cisco Press
14	Setoodeh P., Haykin S., "Fundamentals of Cognitive Radio". John Wiley & Sons, Inc., 2017.
15	R. Steinmetz and K. Nahrstedt, Media Coding and Content Processing, Prentice Hall, 2002,
16	Behrouz A. Forouzan (2012). Data Communications and Networking, Mc Graw Hill
17	Janevski, T. (2015). Internet Technologies for Fixed and Mobile Networks. Artech House.
18	Tanenbaum, A.S., Wetherall, D.J. (2011). Computer Networks, 5th, 2011. Pearson Education, Inc.
19	S. Chapra (2019): Essential MATLAB for Engineers and Scientists, 7th Edition, Publishing House "Elsevier", USA.
20	Labview for everyone. J. Travis, J. Kring, 2007. Prentice-Hall
21	Ralph F. Grove Ph.D., Web Based Application Development, ISBN-13: 9780763759407, 2010
22	Rabin, S. (2010). Introduction to Game Development, 2nd ed. Boston, MA: Charles River Media.
23	James Aweya, Switch/Router Architectures: Systems with Crossbar Switch Fabrics 1st Edition 2020

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24	C. Sommer, F. Dressler, Vehicular Networking, Cambridge University Press, 2015.
25	Millimeter-Wave Wireless Communications, Theodore S. Rappaport, Robert W. Heath Jr., Robert C. Daniels, Prentice Hall, 2015
26	5G Mobile and Wireless Communications Technology, Afif Osseiran, Jose F. Monserrat, Patrick Marsch - Cambridge University Press 2016
27	Pahlavan, Kaveh, and Prashant Krishnamurthy. Principles of wireless access and localization. John Wiley & Sons, 2013.
28	Mavromoustakis, Constandinos X., George Mastorakis, and Jordi Mongay Batalla, eds. Internet of Things (IoT) in 5G mobile technologies. Vol. 8. Springer, 2016.

2.4 University for Business and Technology (UBT)

UBT incorporated the courses related to multimedia into their study programs at their Faculties and study programs (Media communication, Digital art, and Media, Computer Science And Engineering, Mechatronics Management). UBT has library books adapted for multimedia-related courses that are offered in bachelor and master study programs. Within the DIMTV project, UBT has not purchased books.