

VOLUME 1

TEACHING AND LEARNING IN TVET

INNOVATIONS, CHALLENGES AND FUTURE DIRECTIONS

Editors

MULIATI SEDEK
SHAKIR SAAT
SANI IRWAN SALIM

TEACHING AND LEARNING IN TVET

INNOVATIONS, CHALLENGES AND FUTURE DIRECTIONS

Teaching and Learning in TVET: Innovations, Challenges and Future Directions (Volume 1) explores key developments in Malaysia's TVET landscape. Featuring six insightful chapters, the book covers topics such as student readiness for TVET degrees, educator training, game-based learning, service learning, Industry 4.0 workforce skills, and the Teaching Factory 2.0 model. Written by experienced educators and researchers, it offers practical strategies and research-driven insights to enhance teaching, curriculum design, and industry alignment. This volume is an essential resource for educators, policymakers, and industry partners committed to creating a future-ready, high-quality, and relevant TVET ecosystem.



MULIATI SEDEK is an Associate Professor at the Centre for Language Learning, Universiti Teknikal Malaysia Melaka (UTeM). She also serves as the Deputy Director at the Centre for Teaching and Learning (CeLL) at UTeM. Her academic journey includes a PhD from Universiti Putra Malaysia, where she focused on educational technology and ubiquitous learning. Muliati's research interests encompass teaching and learning competencies, privacy and cyber threats, and the integration of ubiquitous technology in education. Throughout her career, Muliati has contributed to various research projects and publications. Notably, she co-authored a study on the development and validation of a framework for teaching competencies in pedagogy content knowledge and instructional quality. Her work often explores the intersection of technology and education, aiming to enhance learning experiences through innovative approaches.



SHAKIR SAAT is currently serving at the Faculty of Electronic and Computer Engineering, Universiti Teknikal Malaysia Melaka (UTeM). He holds a PhD in Electrical and Computer Engineering from the University of Auckland, New Zealand, specializing in nonlinear control system theory. With extensive experience in teaching, research, and academic leadership, his research interests include nonlinear control systems and wireless power transfer technologies. Shakir has published widely in indexed journals, led multiple national research grants, and actively contributes to the academic community as a keynote speaker, editorial board member, and postgraduate supervisor.



SANI IRWAN SALIM is a senior lecturer at the Faculty of Electronics and Computer Technology and Engineering (FTKEK), Universiti Teknikal Malaysia Melaka (UTeM). He specialises in reconfigurable processor and microcontroller architecture, earning his PhD in FPGA-based processor design. He plays a key role in curriculum development for embedded systems, integrating TVET-based, hands-on approaches to enhance technical skills and industry relevance. His research focuses on IoT applications, and he collaborates on numerous R&D initiatives with academic and industry partners.



PENERBIT
UTeM
Press

Website : <https://penerbit.utm.edu.my>
Books Online : <https://utembooks.utm.edu.my>
Email : penerbit@utm.edu.my

ISBN 978-629-7784-71-7



04900

9 786297 784717

© Universiti Teknikal Malaysia Melaka
ISBN: 978-629-7784-71-7

FIRST PUBLISHED 2025

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, electronic, mechanical photocopying, recording or otherwise, without the prior permission of the Penerbit UTeM Press, Universiti Teknikal Malaysia Melaka.

Member of the Malaysian Scholarly Publishing Council (MAPIM)
Member of the Malaysian Book Publishers Association (MABOPA)
Member of Clarivate Analytics

Manuscript Editor

Rahizah Abdul Rahman

Book Cover Designer and Typesetter

Ahmad Masmuliyadi Mohd Yusof

Published and Printed in Malaysia by

Penerbit UTeM Press

Universiti Teknikal Malaysia Melaka

Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia.

Phone: +606 270 1241 Fax: +606 270 1038



Cataloguing-in-Publication Data

Perpustakaan Negara Malaysia

A catalogue record for this book is available
from the National Library of Malaysia

ISBN 978-629-7784-71-7

PERPUSTAKAAN Universiti Teknikal Malaysia Melaka	
No. Aksesan - 875 19735	No. Panggilan LC 1043 T43 2025 9 v1 msl/160426
Tarikh 07 APR 2026	

CONTENTS



Preface.....	vii
List of Contributors.....	ix
Introduction	xvii
Chapter 1: Readiness of Vocational College Diploma Graduates to Pursue a TVET Degree at FTMK UTm <i>Muhammad Shahkhir Mozamir, Shafina Abd Karim Ishigaki and Umisariza Saari</i>	1
Chapter 2: Training and Retraining Framework for Quality and Performance of TVET Educators <i>Mohd Fazli Mohd Sam</i>	23
Chapter 3: Integrating the “Guess Who?” Game to Enhance English Vocabulary Acquisition Among TVET Students <i>Nor Lailatul Azilah Hamdzah, Fazidah Ithnin, Nadiyah Zainal Abidin and Erwan Ismail</i>	51
Chapter 4: Enhancing Technical Competence and Soft Skills Through Service Learning in Microcontroller Course <i>Sani Irwan Md. Salim</i>	69
Chapter 5: Talent Management and Workforce Readiness in TVET: Bridging the Skills Gap for Industry 4.0 – A Narrative Review <i>Nazia Saeed, Waqar Muhammad Akbar and Ahmad Zaki Bin A Bakar</i>	83
Chapter 6: Teaching Factory 2.0: New Product Development Project for Educational and Practical Learnings <i>Hambali Boejang and Ruzy Haryati</i>	109
Index	135