UNIVERSITI TEKNOLOGI MARA

# PIONEERING EDUCATIONAL PERSPECTIVES

Series 2025

# PIONEERING EDUCATIONAL PERSPECTIVES

## Series 2025


Chief Editors:
Nur Alyani binti Khairol Anuar
Muhammad Irfan bin Mokhtar

Editors:
Aqeela binti Ahmad Kamiri
Hawa Syamsina binti Md Supie
Nurul Nadiah binti Rasdi
Qistina Azra binti Mohani
Siti Aishah binti Taib
Nurul Hijah binti Jasman
Siti Mariam binti Mohammad Iliyas



Published by:
Academy of Language Studies, Universiti Teknologi MARA
Cawangan Johor, Kampus Pasir Gudang, Jalan Purnama,
Bandar Seri Alam, 81750 Masai, Johor Darul Ta'zim.
07-3818455
edgii.apbpg@gmail.com

e-ISBN : 978-967-0033-31-0

Published date: 2025

Chief Editors:
Nur Alyani binti Khairol Anuar
Muhammad Irfan bin Mokhtar

Editors:
Aqeela binti Ahmad Kamiri
Hawa Syamsina binti Md Supie
Nurul Nadiah binti Rasdi
Qistina Azra binti Mohani
Siti Aishah binti Taib
Nurul Hijah binti Jasman
Siti Mariam binti Mohammad Iliyas

Published by:
Academy of Language Studies, Universiti Teknologi MARA Cawangan Johor, Kampus Pasir Gudang, Jalan Purnama, Bandar Seri Alam, 81750 Masai, Johor Darul Ta'zim.
07-3818455
edgii.apbpg@gmail.com

# Preface

Pioneering Educational Perspectives: Series 2025 is a collection of thought-provoking insights and research contributions exploring contemporary educational trends and practices. This eBook presents a diverse range of perspectives on innovative teaching methodologies, digital learning strategies, and transformative approaches in education. Designed to serve as a resource for educators, researchers, and practitioners, it aims to inspire meaningful discussions and advancements in the field. Through carefully curated chapters, this publication offers fresh ideas and practical solutions to enhance learning experiences in an ever-evolving educational landscape.

e-ISBN: 978-967-0033-31-0

# Contents

BUDGET EASE ..... 9

Wan Nurul Basirah Wan Mohamad Noor[1], Dr. Mohd Hisham Mahamud[2], Siti Dalina Tumiran @ Kamal Nasser[3*] & Siti Noor Azmawaty Abd Razak[4] ..... 9

PHARMACOLOGY REIMAGINED: INNOVATING DRUG MECHANISM TEACHING WITH TEXT AND INTERACTIVE ANIMATION FOR AN ENHANCED UNDERSTANDING OF CLINICAL OUTCOMES FOR MEDICAL STUDENTS ..... 15

Nafeeza Mohd Ismail[1*], Aida Lina Alias[2], Siti Norsyafika Kamarudin[3], Noor Fahitah Abu Hanipah[4], Muhammad Huzaimi Haron[5] ..... 15

EXCEL ADAPTIVE TEACHING AND LEARNING TOOL FOR PLOTTING SUM OF SINGULARITY FUNCTIONS (EATL-PSSF) ..... 20

Nur Atiqah binti Abdul Rahman[1*], Muhd Firdaus bin Muhd Yusoff [2], Zahari bin Abu Bakar[3] ... 20

MANDARIN ON THE GO: UNLOCKING MANDARIN THROUGH DAILY ACTIVITIES ..... 24

Chong Peng Hwa[1]*, Choo Kim Fong[2] & Toh Ling Ling[3] ..... 24

PRIVATE BODY SAFETY EDUCATION COURSEWARE USING ADDIE MODEL WITH MULTIPLE INTELLIGENCE THEORY ..... 28

Norazian Ahmad[1], Siti 'Aisyah Sa'dan[2*], Ummu Fatihah Mohd Bahrin[3] & Siti Salbiah Hamzah[4] ..... 28

TAXATION ESCAPE ROOM: INNOVATING EDUCATION WITH INTERACTIVE TOOLS FOR MASTERING EMPLOYMENT INCOME ..... 32

Suzana San[1*], Nik Zam Nik Wan[2], Syuhaila Razak[3], Siti Nor Adawiah Hussin[4] & Azilawati Abdullah @ Abd Aziz[5] ..... 32

TIME TO ENGLISH (TTE): PROBLEM-SOLUTION ESSAY ..... 37

Shahira Adam[1]*, Ira Syaqira Sukimin[2], Norhafizah Amir[3], Nur Fadzilah Muhamad Zamani[4] & Nur Sherina Zainal Abidin[5] ..... 37

OPTIMISING TEACHING AND LEARNING THROUGH THE INTEGRATION OF DIGITAL TOOLS - CITEQUEST: DUNGEONS & DRAGONS ..... 41

Nur Syafiqah Abdul Kadar[1]*, Aisyah Hani Mohd Habali[2] & Nur Amalina Zaharudin[3] ..... 41

TIME TO ENGLISH (TTE): FREE VERSE POEM ..... 45

Nur Sherina Binti Zainal Abidin[1,*], Ira Syaqira Binti Sukimin[2], Norhafizah Binti Amir[3], Susanna Bithiah Varma[4] & Nur Fadzilah Binti Muhamad Zamani[5] ..... 45

TIME TO ENGLISH (TTE): PITCHING ..... 49

Susanna Bithiah Varma[1]*, Ira Syaqira Sukimin[2], Norhafizah Amir[3], Shahira Adam[4] & Nur Sherina Zainal Abidin[5] ..... 49

UBBL 1984 FIRE SAFETY REQUIREMENT GPT: AI-POWERED LEARNING TOOL FOR BUILDING COMPLIANCE ..... 53

Erdayu Os'hara Omar[1*], Muhamad Syariz Niza Salehhuddin[2] & Muhammad Haziq Wahid[3] .. 53

e-ISBN: 978-967-0033-31-0

# EXCEL ADAPTIVE TEACHING AND LEARNING TOOL FOR PLOTTING SUM OF SINGULARITY FUNCTIONS (EATL-PSSF)

Nur Atiqah binti Abdul Rahman[1*], Muhd Firdaus bin Muhd Yusoff [2] & Zahari bin Abu Bakar[3]

*[1,2]Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA Cawangan Sarawak*
*[3] Electrical Engineering Studies, College of Engineering, Universiti Teknologi MARA, Kampus Pasir Gudang*

**Corresponding author: nur_atiqah019@uitm.edu.my*

**ABSTRACT**
The "Excel Adaptive Teaching and Learning Tool for Plotting Sum of Singularity Functions (EATL-PSSF)" is a cutting-edge educational tool developed to simplify the complicated task of plotting the sums of singularity functions for students. The tool utilizes the accessibility and familiarity of Excel, converting it into a dynamic platform for the purposes of learning and visualization. The main objective of EATL-PSSF is to improve students' understanding of singularity functions by offering an intuitive and accessible platform that enables them to visually perceive the cumulative impacts of various singularity functions in real-time. The main characteristics comprise of configurable input parameters, automated graphing, and adaptive learning modules that accommodate different degrees of student competence. This tool not only facilitates conventional teaching approaches but also promotes independent learning at one's own speed, rendering it a valuable tool for educators and students in the fields of engineering.

**KEYWORDS:** Singularity Functions, Educational Tool, Excel, Adaptive Learning, Visualization.

## PROBLEM AND OBJECTIVE

Understanding singularity functions and their utilization in engineering could cause difficulties for students, primarily because of the theoretical character of the principles and the complexity associated with manually graphing these functions. The main goal of EATL-PSSF is to tackle this issue by offering a user-friendly and interactive tool that streamlines the process of graphing the total of singularity functions. The purpose of the tool is to enhance students' learning, lessen the mental effort required for manual plotting, and promote a more profound comprehension of the fundamental mathematical ideas.

## DESIGN DESCRIPTION

The EATL-PSSF is an instructional tool that utilizes Excel to connect the theoretical and practical aspects of understanding singularity functions. Excel is chosen as a tool due to its versality have been proven as a powerful educational tool in improving both achievement and retention (Iji et al., 2022). In addition, research conduct by (Darnal et al., 2022) provides a relevant example of how Excel can be used to facilitate understanding of singularity functions in a practical context. Students can input different singularity functions, modify parameters, and immediately visualize the corresponding graphs. The program offers real-time graphing, customisable functionalities, and step-by-step instruction to facilitate the learning process. This

e-ISBN: 978-967-0033-31-0

resource is specifically designed for students enrolled in engineering who seek an improved understanding of singularity functions. The distinguishing feature of EATL-PSSF is its versatility in accommodating various levels of learning, rendering it appropriate for both novices and proficient learners.

## VISUALS

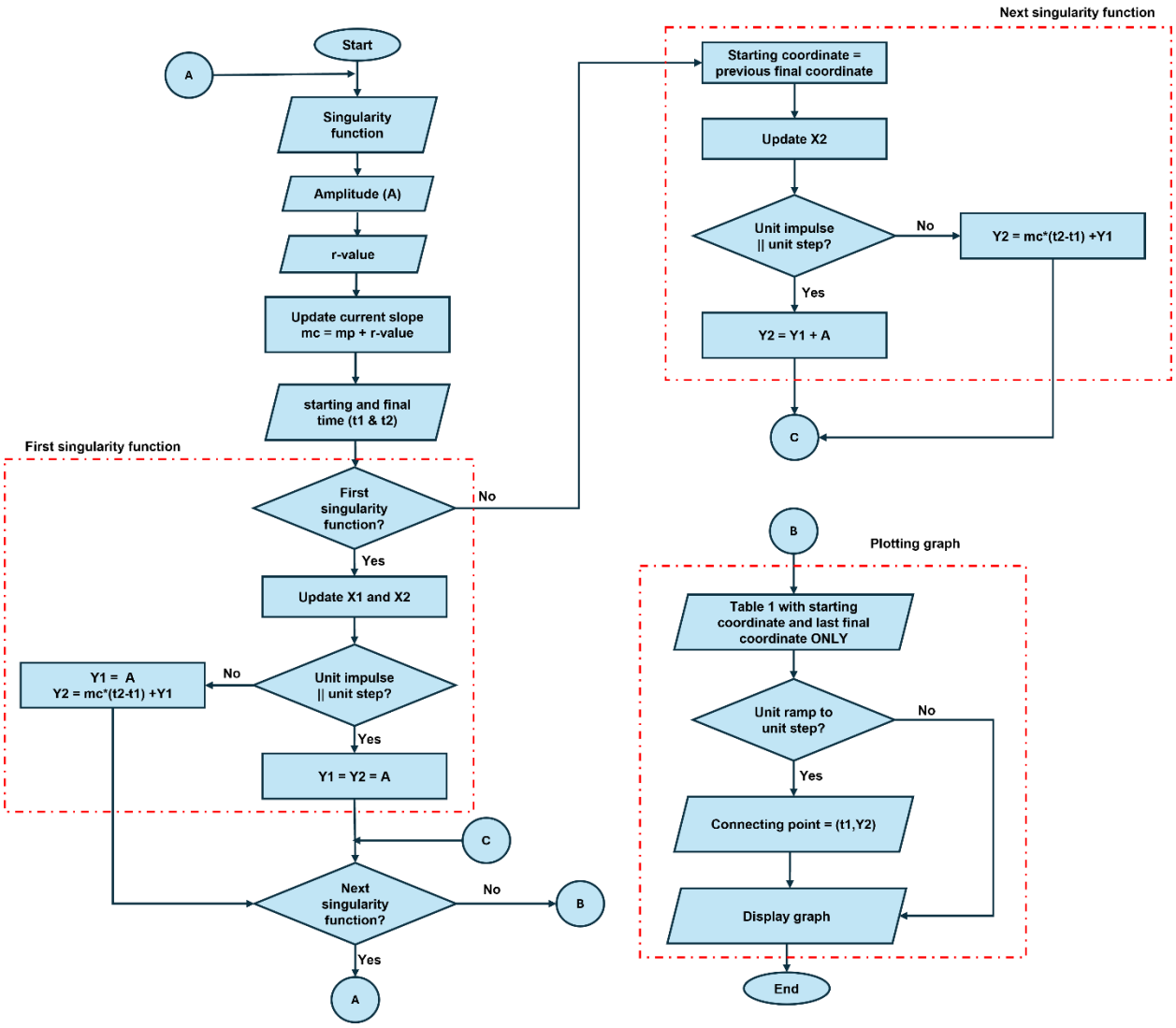


Figure 1: EATL-PSSF flowchart

e-ISBN: 978-967-0033-31-0

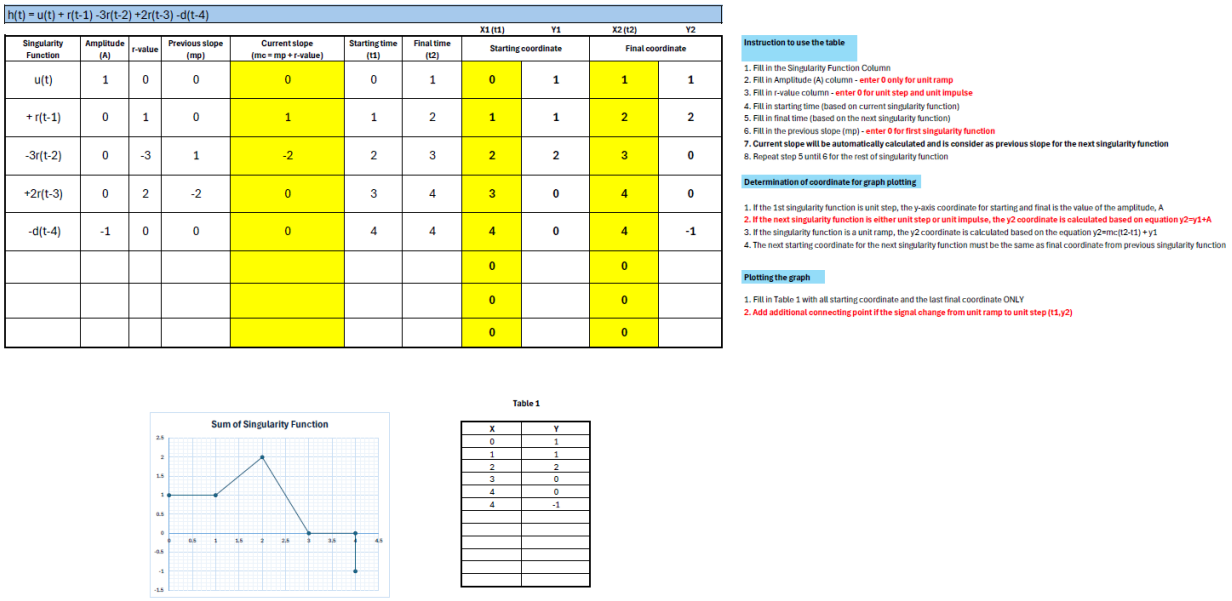


Figure 2: EATL-PSSF tool using Excel

## NOVELTY AND UNIQUENESS

EATL-PSSF is notable for its combination of Excel's universal availability and strong teaching features. Contrary to conventional software or tools that are difficult to master, EATL-PSSF makes use of a platform that is already familiar to most students. This reduces the obstacles to getting started and encourages early involvement. The adaptive learning features of this tool differentiate it from other educational tools by customizing the experience based on the student's competence level.

## BENEFITS TO MANKIND

EATL-PSSF enhances educational outcomes by facilitating knowledge and accessibility of complex mathematical ideas. By alleviating the mental effort involved with acquiring functions, it enables students to get better academic outcomes and promotes a more inclusive learning atmosphere.

## COMMERCIAL POTENTIAL

The EATL-PSSF has substantial commercial potential because of its significant applicability in the fields of engineering and mathematics education. Its competitive advantage is derived from its adaptability, simplicity of use, and integration with Excel. The tool can be readily marketed and scaled to educational institutions, with potential business models including one-time purchase options or subscription-based access.

## CONCLUSION

The EATL-PSSF represents a significant advancement in the educational tools available for teaching singularity functions. The platform, which is built on Excel, incorporates adaptive learning elements to provide a distinctive answer to a long-standing educational problem. Possible future advancements may involve enhancing the tool's capabilities to encompass supplementary mathematical ideas and connecting it with online learning platforms to extend its reach to a wider audience.

e-ISBN: 978-967-0033-31-0

## REFERENCES

Darnal, A., Fisseler, M., Benjamin, C., & Srinivasa, A. (2022). An Excel-based approach for designing stepped driveshafts for mobility devices and a study of its use in a design of machine elements course. Computer Applications in Engineering Education, 30. https://doi.org/10.1002/cae.22528

Iji, C. O., Abakpa, B. O., Agbo-Egwu, A. O., & Takor, D. I. (2022). Utilizing Microsoft excel spreadsheet technology to improve senior secondary school students' achievement and retention in quadratic function in Nigeria education. International Journal on Teaching and Learning Mathematics, 5(1), 1–14. https://doi.org/10.18860/ijtlm.v5i1.18292