

MELAKA
INTERNATIONAL
INTELLECTUAL EXPOSITION

MIIEX'24

12 JUNE '24

Dewan Taming Sari,
Universiti Teknologi MARA Caw. Melaka,
Kampus Alor Gajah, Melaka

*"Empowerment of Special
Needs through Invention
& Innovation"*

**EXTENDED
ABSTRACT**

MiiEX'2024

MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION 2024

**“EMPOWERMENT OF SPECIAL NEEDS THROUGH INVENTION AND
INNOVATION”**

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UiTM Cawangan Melaka

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78000 Alor Gajah

Melaka Bandaraya Bersejarah

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MiiEX'2024

MELAKA INTERNATIONAL INTELLECTUAL EXPOSITION 2024

“EMPOWERMENT OF SPECIAL NEEDS THROUGH INVENTION AND
INNOVATION”

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FOREWORD BY THE RECTOR OF UiTM CAWANGAN MELAKA



Professor Ts. Dr. Mohd Rasdi bin Zaidi

Rector, Universiti Teknologi MARA (UiTM)

Cawangan Melaka

Welcome to the Melaka International Intellectual Exposition 2024 (MIIEX '24). It is an honour for me, on behalf of UiTM Cawangan Melaka, to thank all of you for joining MIIEX '24. We are proud to inform you that this is the 13th consecutive year that UiTM Cawangan Melaka is organizing this exposition. Since 2009, UiTM Cawangan Melaka has successfully hosted this innovation exposition. Not only have we succeeded in organizing the exposition, but we have also successfully embarked on commercialized products.

2024 is a special year where MIIEX 2024 emphasizes the development of special needs. As we know, special needs indicate a limitation in a person's ability to engage in and benefit from various aspects, such as daily activities and education. Hence, with the theme "Empowering Special Needs Through Invention and Innovation," it is a platform for industries, professionals, academicians, students, and communities to share their innovative ideas and products to increase accessibility for those with special needs.

The successful implementation of MIIEX '24 is our joint success. This event was supported by the Melaka state government through YB Datuk Fairul Nizam bin Roslan, the EXCO of Science, Technology, Innovation, and Digital Communication. I also want to express my

gratitude to Universitas Negeri Padang, Indonesia, Universitas Muhammadiyah, Makassar, Indonesia, the International Association of Economic and Businesses (IAEB), Universiti Sains Islam Malaysia, Ibnu Umami Maktum Research Center (UMMI), USIM, and The Southeast Asia Minister of Education Organization Regional Centre for Special Educational Needs (SEAMEO SEN) as our co-collaborators for MIIEX 2024.

The collaboration from various parties in MIIEX '24 is a platform that will improve cooperation and interweaving among industries, professionals, academicians, students, and communities in shaping their potential in developing innovation products. This exposition also serves as a platform to cultivate and uphold the nation's innovation culture by presenting new ideas and research by young people, especially from academia and universities. Indirectly, MIIEX '24 will encourage all inventors towards empowering Science, Technology, Engineering, and Mathematics (STEM), especially in primary and secondary schools.

The new digital landscape also inspires more innovation and new ideas that contribute to various activities, such as business and industries. As a university that encourages "Research and Innovation," we aim to foster more innovative products that benefit scholars, industries, and communities, addressing issues to improve our present and future life.

This exposition would never happen without dedication, teamwork, and commitment. A round of applause should be given to the committee teams, who are the backbone of this exposition. Their hard work, effort, and time made this exposition possible.

Finally, I would like to conclude this brief remark by thanking all the participants and stakeholders for joining the exposition. We hope that this collaboration never ends here.

Thank you.

FOREWORD BY THE DEPUTY RECTOR (RESEARCH & INDUSTRIAL LINKAGES)



Associate Professor. Dr. Nur Hayati binti Abd Rahman

Deputy Rector (Research & Industrial Linkages), Universiti Teknologi MARA (UiTM) Cawangan Melaka

With much passion and privilege, let me warmly welcome all of you to the Melaka International Innovation Exhibition (MIIEX), UiTM Cawangan Melaka's flagship event. I firmly believe that events such as these demonstrate the gradual evolution of this platform in terms of its significance and its governing principles within the sphere of learning and the broader scholarly society.

The theme for this year, "Empowering Special Needs Through Invention and Innovation," strongly connects to our mission of using research and technology to make a positive impact on the world we live in. Besides enforcing the message of diversity, this theme also reaffirms our focus on creating products to improve the lives of people with disabilities (PWDs). Such innovations are vital as only through focused constructive changes can society become more sensitive to the needs of all members.

MIIEX allows researchers, students, and industry professionals to come together, share their innovative research, and develop viable research partnerships. It has been great to see the enthusiasm of the participants and the efforts they put into their projects, which can offer various social and economic benefits. This is why one can state that MIIEX is a great

opportunity for creating connections between the academic environment and industry, facilitating the implementation of innovative and promising projects.

Finally, I would like to express my sincere appreciation to all the members and supporters of the organizing committee, all the participants, sponsors, and everyone involved in preparing this event. I want to express my gratitude for your commitment and involvement, as the success of MIIEX and the development of an active culture of innovation in our university and beyond is partly owed to your support.

Thank you

FOREWORD BY THE PROJECT DIRECTOR



Dr Zulkefli bin Muhamad Hanapiyah

Senior Lecturer

Assalamualaikum and Warmest Greetings,

It gives me a great pleasure, on behalf of the organizing committee, to welcome all participants and speakers to the Melaka International Intellectual Exposition 2024 (MIIEX '24) with the theme "Empowering Special Needs Through Invention and Innovation." We are honoured and pleased to welcome all participants to this biennial event.

MIIEX '24 is a platform that gathers experts from local and international industries, academia, scientists, researchers, and the community to contribute to the advancement of scientific and technological knowledge. This knowledge helps develop disruptive innovation products that improve daily activities for businesses and the community, especially those with special needs.

MIIEX '24 provides an atmosphere for inventors of all levels to gain new exposure and collaborate. Indirectly, this promotes a collaborative and innovative culture that focuses on cutting-edge technologies and new standards in technology and creativity.

MIIEX '24 is anticipated to serve as an arena for participants to acquire and disseminate revolutionary information on ideas and innovation. It is intended that the competition will expose the contestants' minds to the latest technologies and designs, aligning with the government's goal of encouraging innovation in Malaysia.

Finally, I want to compliment my fellow committee members on their amazing efforts, which were vital to the event's success. In addition, I want to thank our co-organizers, event sponsors, and participants. Optimistically, we hope that all new knowledge discovered, invented, or innovated will lead us toward future sustainability.

Thank you.

**FOREWORD BY MELAKA STATE EXCO OF SCIENCE, TECHNOLOGY,
INNOVATION AND DIGITAL COMMUNICATIONS**



YB Datuk Fairul Nizam bin Roslan

Melaka State Exco of Science, Technology, Innovation and Digital Communications

Welcome to the Melaka International Intellectual Exposition 2024 (MIIEX '24). It is an honor for me, on behalf of UiTM Cawangan Melaka, to thank all of you for joining MIIEX '24. We are proud to inform you that this is the 13th consecutive year that UiTM Cawangan Melaka is organizing this exposition. Since 2009, UiTM Cawangan Melaka has successfully hosted this innovation exposition. Not only have we succeeded in organizing the exposition, but we have also successfully embarked on commercialized products.

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Thank you.

MIIEX'24 ORGANISING COMMITTEE

COMMITTEE	NAME
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	AFZAN SAHILLA BINTI MOHD AMIR HAMZAH
	MUHAMMAD FURQAN BIN AZHAR
	KHAIRUL AZHAR BIN LOCHMAN

ABOUT MIIEX'24

MIIEX'24 is an innovation competition annually organised by UiTM Melaka with the intention to bring together ideas and inspiration that could fit in for commercialization needs.

This event creates a platform for researchers to establish networking, partnership and opportunities to collaborate with industries.

OBJECTIVES

1. Encourage and instil passion towards inventing and innovating among UiTM Cawangan Melaka staff, students and academicians of local and international higher education institutions;
2. Highlight distinguished talents of skilful inventors and exhibit intellectual products, inventions and innovations among local and private tertiary institutions, government and private agencies, including international participants;
3. Become an effective Business Matching platform for participating research products, matching industries and partnering government agencies;
4. Recognise, inspire and promote invention and innovation products to be patented and commercialized;
5. Increase passion towards inventing and innovating through research and boost interests of government and non-government agencies to obtain consultancy services from a line up experts of higher education institutions and UiTM Cawangan Melaka.

THEME

'EMPOWERMENT OF SPECIAL NEEDS THROUGH INVENTION AND INNOVATION'

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CDL-CQI Template

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Abstract

Closing The Loop – Continual Quality Improvement (CDL-CQI) Template is a template developed for reporting the continual quality improvement processes at course level. It is being implemented for the Diploma in Electronic Engineering and Diploma in Electrical Engineering in UiTM. This template includes the process of monitoring, review, and CQI purposes for a course. For a programme to be accredited, it is important for the programme to have CQI processes, including documentation. Incomprehensible CQI documents and repetitive tasks for reporting are the main concerns. Due to these, the CDL-CQI template is created to assist the persons in charge in preparing a comprehensive Plan-Do-Check-Act (PDCA) cycle in CDL-CQI report within a minimal time. CDL-CQI Template aims to facilitate the Resource Person (RP) to do the reporting of CDL-CQI at the course level; data entry, data analysis, data visualization and graphical display are becoming easier. Therefore, the documentations for accreditation purposes will be standardized, comprehensive, tangible and manageable. This template operates using Microsoft Excel. It is available offline, and provides flexibility – anytime, anywhere, on any devices, and is easy to use. It also requires basic skills and the most important is it implies no additional cost to the educational institution. It is expected to provide an assistance to the RP in data entry, data analysis, and observed the performance for the course performance reporting, which is significantly related to any educational programme. This CDL-CQI template has a high potential for commercialization in reporting course performance, monitoring, and review.

Keywords: CDL, CQI, PDCA, Monitoring and Review

1. INTRODUCTION

The CDL-CQI report is one the important pieces of evidence in the accreditation process for engineering programmes (S. Abdullah, 2018). It is essential to measure, analyze, monitor, and review the course outcome (CO) to ensure that the quality of a programme is continuously improved (Academic Assessment & Evaluation Division, 2023; Ab Latif, N. A. & Mohd Nor, M. Y.,2021). However, it is very challenging to perform reporting, data visualisation, analyse concerns and determine prompt corrective and preventative measures without a decent template. In addition, it becomes inefficient - time consuming for repetitive tasks.

The CDL-CQI template, as seen in Figure 1, comprises four sections: Course Details, Course Outcome Statements, Course Outcome Performance and Plan-Do-Check-Act (PDCA). In general, course background information will be displayed in the first section of the CDL-CQI template. CO statements are included in the second section. In the meantime, the report will show the CO performance for four consecutive semesters in the third section. Based on the data entered by the Resource Person (RP), the status (Issue Not Yet Resolved or Resolved) will be generated and visualised. According to the data analysis, the Resource Person (RP) will finish the PDCA cycle in the final section of the CO performance visualization to address any concerns that may arise during the course. The RP will be responsible for: 1) identifying the issues at the beginning of the semester; 2) determining what's being implemented to solve the issues; 3) reviewing and analyzing the continuous assessment of underperformed CO throughout the semester; and, 4) reviewing and implementing the best solution/corrective/preventive action. To make the PDCA cycles tangible and evident, RP must include supporting documentation as an appendix to the CDL-CQI report.

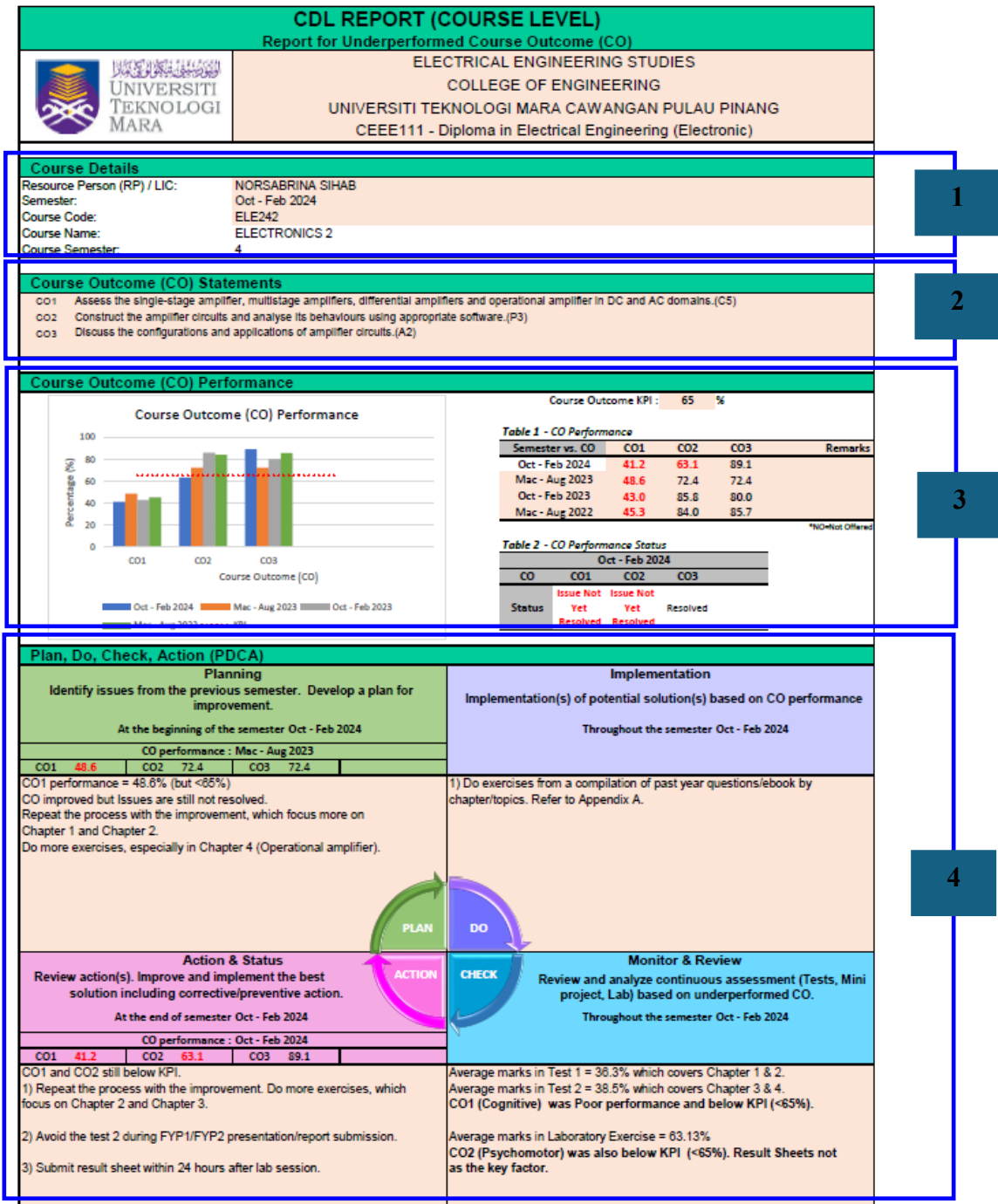


Figure 1. Example of CDL-CQI Report using CDL-CQI Template

2. OBJECTIVE

CDL-CQI Template aims to generate a comprehensive report that is able to: 1) assist RPs in reporting a course performance at the course level in a minimal time; 2) visualize and display the course outcomes attainments and the status in previous and current semesters; and 3)

provides a complete and tangible Plan-Do-Check-Action (PDCA) cycle for the monitoring and review of CO attainment purposes at the course level.

3. NOVELTY & INVENTIVENESS

The purpose of the CDL-CQI Template is developed to facilitate the RPs to do the reporting of CDL-CQI at the course level. Finally, the documentations for the accreditation process will be standardised, comprehensive, tangible, and manageable.

4. PRACTICALITY & USEFULNESS

This template is operating using Microsoft Excel. It is a universal and popular spreadsheet software developed for Windows, macOS, Android, iOS, and iPadOS - is available offline, offers flexibility in terms of anytime, anywhere, any device, is easy-to-use and requires rudimentary skills. More importantly, it implies no additional cost to the faculty or institution. Thus, it's expected to provide an assistance to the RPs for course performance reporting, which is significantly related to any educational programme.

5. CONCLUSION

The key factor for the engineering educational institution is to have standard, well-organized, and comprehensive reports that are in line with accreditation requirements. The CDL-CQI Template benefits the faculty, especially for accreditation purposes, and generates a comprehensive individual course-level report. Utilize basic software: Microsoft Excel is simple, flexible, easy-to-use, requires no additional cost, and, requires basic skills and knowledge.

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