Journal of Engineering Research and Education
Volume 18, (Special Issue) 2026 [185-195]

On the Operationalisation of Values, Flexibility and Sustainability in Curricula Adhering to MQF 2.0 2024

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ABSTRACT

The Malaysian Qualifications Framework (MQF) 2.0 Addendum 2024 emphasises Values-Based Education (VBE), Flexible Learning Pathways (FLP), the Global Sustainability Agenda (GSA), and harmonisation with sectoral frameworks to strengthen graduate readiness and institutional compliance. As the 2026 compliance audit approaches, programme owners at undergraduate and postgraduate levels require a systematic approach to integrate these emphases into curricula. This paper analyses the evolution of the MQF, comparing MQF 1.0, MQF 2.0 (2017), and MQF 2.0 Addendum (2024), while contextualising global frameworks such as UNESCO's Education for Sustainable Development, the ASEAN Qualifications Reference Framework, and the Washington Accord. We propose a structured operationalisation framework aligning Programme Learning Outcomes (PLOs), Course Learning Outcomes (CLOs), and curriculum delivery with MQF's four emphases, while embedding SDG targets and IR4.0 competencies within teaching, learning, and assessment strategies. The framework is designed to be adaptable across disciplines, enabling institutions to implement policy-driven curriculum transformation regardless of programme type. Challenges in values assessment, curriculum flexibility, and staff readiness are discussed, alongside strategies for audit documentation and stakeholder engagement. This paper presents a practical and scalable model to guide Malaysian higher education institutions in aligning their curricula with MQF 2.0 Addendum 2024, ensuring audit-readiness and supporting the development of holistic, industry-ready graduates aligned with national and global policy aspirations.

Keywords: Malaysian Quality Framework (MQF), Values-Based Education (VBE), Flexible Learning Pathways (FLP), Global Sustainability Agenda (GSA), Curriculum Review, Outcome-Based Education (OBE)

1. INTRODUCTION

Higher education today faces unprecedented challenges driven by technological disruptions, rapidly evolving labour market demands, and the urgent need to prepare graduates with sustainability mindsets and adaptable competencies. The acceleration of the Fourth Industrial Revolution (IR4.0) and the transition towards IR5.0 require that graduates possess advanced technical competencies, digital skills, and ethical values to navigate the volatility, uncertainty, complexity, and ambiguity inherent in society and the workforce [1-3]. To address these shifts, higher education curricula must evolve to incorporate lifelong learning pathways, flexible delivery, sustainability, and values-based education as core elements [4-6]. Authoritative frameworks such as UNESCO's Education for Sustainable Development [7], the World Economic Forum's Skills for the Future framework [8], the ASEAN Qualifications Reference Framework (AQRF) [9], and the Washington Accord for engineering education [10] all emphasise holistic, outcome-based, and future-ready learning. These frameworks call for systematic alignment between programme outcomes and global competencies, advocating for curricula that prepare graduates as global citizens who can address complex challenges while meeting the demands of dynamic industries [11].

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Outcome-Based Education (OBE) and robust quality assurance systems are foundational to curriculum transformation, ensuring constructive alignment between Programme Learning Outcomes (PLOs), Course Learning Outcomes (CLOs), teaching and learning activities, and assessments to produce graduates who are industry-ready and socially responsible [12]. In Malaysia, the Malaysian Qualifications Agency (MQA) serves as the national quality assurance authority, overseeing post-secondary education through the Malaysian Qualifications Framework (MQF). The MQF provides a unified structure that integrates academic, TVET, and lifelong learning pathways while maintaining quality and supporting international recognition of Malaysian qualifications [13]. The latest MQF 2.0 Addendum 2024 introduces significant enhancements that reflect global best practices, including Values-Based Education (VBE), Flexible Learning Pathways (FLP), the Global Sustainability Agenda (GSA), and harmonisation with sectoral frameworks [13]. These updates align Malaysia's qualifications system with regional frameworks such as AQRF and aim to prepare graduates for an increasingly volatile, uncertain, complex, and ambiguous (VUCA) world [14].

Despite the availability of these frameworks, many Malaysian higher education institutions (HEIs) face challenges in systematically operationalising MQF requirements within their curriculum review processes, resulting in inconsistent integration of values, sustainability, and flexibility across programmes [15]. This misalignment undermines the potential of HEIs to fully address the evolving demands of industry, policy, and society while sustaining academic rigour. To address this gap, this study proposes a practical and scalable framework to support the operationalisation of MQF 2.0 2024 across Malaysian HEIs. The framework equips programme owners with actionable strategies to embed VBE, FLP, GSA, and sectoral harmonisation within their curricula, ensuring readiness for compliance audits by 2026 and enhancing the quality and relevance of graduates. The paper is structured as follows: Section 2 introduces the Malaysian Qualifications Framework and audit processes; Section 3 explains the Four Emphases of MQF 2.0 2024; Section 4 presents the proposed operationalisation framework; and Section 5 concludes the study.

2. THE MALAYSIAN QUALIFICATIONS FRAMEWORK

The Malaysian Qualifications Framework (MQF) is an outcome-based structure that standardises post-secondary education from Level 3 (Certificate) to Level 8 (Doctorate), ensuring national alignment with international benchmarks such as AQRF. At its core are four interrelated quality assurance (QA) instruments: the Code of Practice (COP) for programme accreditation, the Standards for minimum qualification levels, Programme Standards for discipline-specific requirements, and the Guidelines to Good Practice (GGP) for implementation support. Collectively, these tools guide curriculum developers in designing, reviewing, and enhancing programmes through systematic gap analysis and stakeholder engagement. Programme owners must align with COPPA or COPIA, verify structural and credit compliance using the Standards, apply Programme Standards to meet disciplinary benchmarks, and use GGP to operationalise best practices. Additionally, alignment with professional body requirements, such as those of the Engineering Accreditation Council (EAC), the Malaysian Medical Council (MMC), or Lembaga Arkitek Malaysia (LAM), is essential to ensure dual compliance, enhance graduate employability, and support professional recognition in both national and global contexts. Table 1 lists the key QA documents supporting this multi-layered assurance system.

The Malaysian Qualifications Agency (MQA) operationalizes this framework through a structured audit process to grant, maintain, or renew programme accreditation. These audits evaluate alignment with the MQF, COPPA, and Programme Standards by reviewing documentation, including the MQR-01/02 forms, Self-Review Reports, and supporting evidence (Table 2), as well as structured compliance tables (Table 3). Audits vary by institutional status; SWA institutions conduct internal audits, while non-SWA providers undergo external MQA reviews. These occur at

various stages, including new programme approval, full accreditation for the first cohorts, periodic renewals, or after major revisions.

Table 1 MQA Quality Assurance Documents

Document Title	Year	Type	Description
Code of Practice for Programme Accreditation (COPPA), 2nd Ed	2017	COP	Central COP governing programme accreditation across all HEPs
Code of Practice for Institutional Audit (COPIA)	2018	COP	COP guiding institutional-level internal and external audits
Code of Practice for TVET Programme Accreditation (COPTPA), Ed. 2	2019	COP	COP tailored to TVET programme accreditation from MQF Levels 1–5
Code of Practice for Programme Accreditation—Open & Distance Learning (COPPA: ODL)	2021	COP	COP for ODL delivery models where > 60% of learning is distance-based
Standards for Undergraduate Programmes	2025	Standards	Defines MQF Level 3–6 minimum QA requirements for undergraduate awards
Standards for Master's & Doctoral Degrees	2025	Standards	Postgraduate-level QA requirements for MQF Levels 7–8
Programme Standards: Computing, Education, Medical & Health Sciences, Hospitality…	2019–2023	Programme Standards	Discipline-specific minimum QA benchmarks across MQF Levels 4–8
GGP: Academic Staff; GGP: Academic Workload; GGP: APEL; GGP: Microcredentials; etc.	2014–2023	Guidelines to Good Practice (GGP)	Best-practice guidance across nine QA domains to support COP and PS implementation

Table 2 Required Documents for MQA Audit

Document	Purpose
MQR-01 (New) / MQR-02 (Revised)	Provides comprehensive programme information, including PEO, PLO, CLO, curriculum structure, delivery methods, and assessment approaches.
COPPA Self-Review Report (SRR)	A reflective evaluation against the seven QA areas of COPPA, supported by evidence demonstrating compliance and implementation.
Supporting Documents	Includes CVs of academic staff, evidence of facilities, records of stakeholder engagements, and documentation of industry collaborations, providing proof of resources and industry relevance.

Table 3 Structured Tables Required for MQA Audit

Table	Content	Purpose
Table 1	Programme structure, course synopses, credits, SLT, and contact hours	Verifies curriculum compliance and delivery capacity
Table 2	PLO-CLO Mapping Matrix	Ensures constructive alignment with MQF clusters
Table 3	Assessment Mapping Table	Aligns assessments with CLOs, MQF clusters, and Bloom's Taxonomy

The audit cycle as illustrated in Figure 1 begins with planning and preparation, followed by document submission, panel review, on-site or virtual verification, and concludes with reporting and accreditation decisions. A pivotal compliance tool is the mandatory Table 4.xla Excel macro, which calculates SLT, maps CLOs to PLOs and MQF clusters, tracks Bloom's Taxonomy levels, and flags alignment issues, ensuring data integrity and audit-readiness. Together, these processes ensure transparency, accountability, and continuous programme improvement, equipping graduates with competencies demanded by MQF 2.0 (2024) and professional accreditation bodies, while sustaining Malaysia's global education reputation.

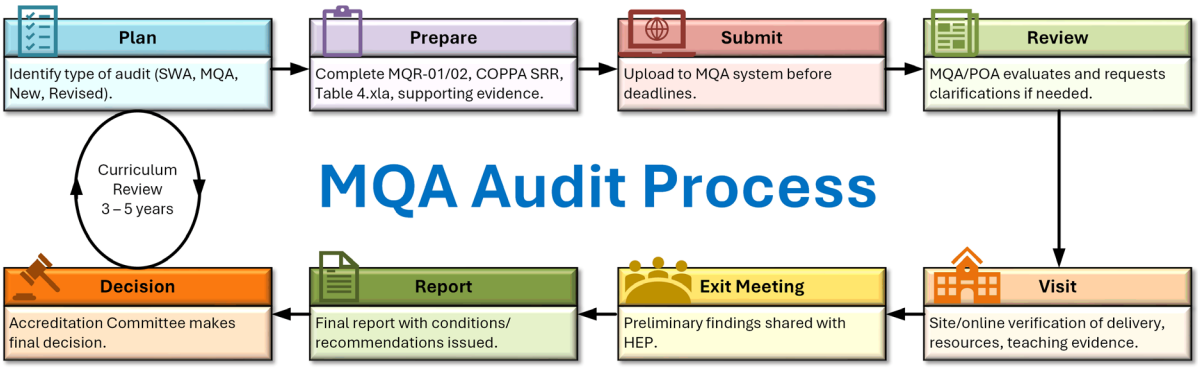

Figure 1. MQA Audit Process.

3. THE FOUR EMPHASES OF MQF 2.0 2024

The Malaysian Qualifications Framework (MQF) 2.0 (2024) introduces four strategic emphases: Values-Based Education (VBE), Flexible Learning Pathways (FLP), the Global Sustainability Agenda (GSA), and Harmonisation with Sectoral Frameworks, to transform Malaysia's higher education landscape into a more responsive, inclusive, and future-ready system. Building on the foundational structure of MQF 2.0 (2017), these emphases align with national aspirations, the Twelfth Malaysia Plan, and global imperatives such as the UN Sustainable Development Goals (SDGs) and AQRF. Together, they ensure that higher education institutions embed ethics, flexibility, sustainability, and industry relevance into curriculum design and delivery, preparing graduates to navigate complex global challenges while upholding quality, equity, and lifelong learning.

3.1. Values-Based Education (VBE)

VBE has emerged as a core pillar in MQF 2.0 (2024), reflecting Malaysia's commitment to producing graduates who are not only intellectually competent but also ethically grounded and socially responsible. In alignment with the National Education Philosophy and global imperatives such as UNESCO's Education for Sustainable Development, VBE ensures that learners are equipped to navigate complex societal, environmental, and economic challenges with integrity and empathy. Recognised by the World Economic Forum as foundational to future skills, VBE emphasises humanistic values, ethical reasoning, and collaborative competencies essential for the Fourth and Fifth Industrial Revolutions. Operationalising VBE requires that PLOs, CLOs, teaching strategies, and assessment methods be explicitly infused with ethical and reflective dimensions, enabling graduates to bridge technical knowledge with moral responsibility. Institutions integrate VBE through ethics modules, community-based projects, reflective writing, and faculty role modelling to embed values meaningfully across disciplines. By institutionalising VBE into curriculum review cycles, Malaysian higher education ensures that graduates are prepared not only for professional excellence but also for contributing to society with a moral compass, advancing sustainable development, and maintaining public trust in higher education.

3.2. Flexible Learning Pathways (FLP)

FLP is a central feature of MQF 2.0 (2024), designed to widen access to higher education, promote lifelong learning, and enhance system agility in response to diverse learner needs and evolving industry demands. By accommodating multiple entry points, varied learning modes, and stackable progression routes, FLP ensures that learners from all backgrounds, regardless of age, socioeconomic status, or prior educational experience, can participate meaningfully in and benefit from higher education. The cornerstone of this approach is the Accreditation of Prior Experiential Learning (APEL), which systematically recognises formal, non-formal, and informal learning for admission [APEL(A)], credit transfer [APEL(C)], or full qualification award [APEL(Q)], as detailed in Table 4. These pathways provide learners with validated routes into education, allowing them to build on previously acquired knowledge and skills, thereby aligning with the Sustainable Development Goals (SDGs) and Malaysia's Education 2030 agenda. In parallel, microcredentials and stackable modules enable learners to rapidly upskill or reskill in response to technological shifts, with the potential to accumulate these credentials toward full academic awards. The MQF 2.0 supports this modular approach by embedding flexibility within curriculum design, ensuring alignment with PLOs while maintaining academic rigour. For higher education institutions (HEIs), effective implementation of FLP and microcredentials requires curriculum reform, assessment realignment, and industry collaboration to ensure relevance, quality assurance, and learner progression within a dynamic, future-ready educational ecosystem.

Table 4 Accreditation of Prior Experiential Learning (APEL)

APEL Type	Purpose	Application Level	Key Features
APEL.A (Access)	Access to programmes without formal qualifications	Certificate to Doctorate	Admission based on experiential learning assessment
APEL.C (Credit Award)	Credit transfer/ exemption for prior experiential learning	Certificate to Doctorate	Credit exemptions based on validated experience
APEL.Q (Qualification Award)	Full qualification award	Up to Level 6 (Bachelor)	Award based on a comprehensive portfolio and assessments.

3.3. Global Sustainability Agenda (GSA)

Integrating the GSA into MQF 2.0 2024 signifies Malaysia's commitment to embedding sustainability as a core principle of higher education, in alignment with national priorities outlined in the Twelfth Malaysia Plan and global frameworks, such as the Sustainable Development Goals (SDGs). The updated framework expands sustainability beyond environmental awareness, incorporating Environmental, Social, and Governance (ESG) values that demand ethical leadership, inclusive development, and responsible innovation. Institutions are now urged to transition from treating sustainability as an isolated topic to embedding it holistically within PLOs, CLOs, and curriculum delivery. This involves developing cross-cutting sustainability competencies, such as systems thinking, futures literacy, ethical and reflective reasoning, resilience thinking, awareness of the circular economy, and transdisciplinary problem-solving. By aligning these competencies with disciplinary content, universities can produce graduates who are not only technically proficient but also capable of navigating the complexities of sustainable development. Teaching strategies such as experiential and project-based learning, stakeholder co-creation, community engagement, and industry-ESG partnerships provide students with authentic contexts for applying these principles. Graduates equipped with a strong

sustainability mindset and ESG literacy will possess a distinct advantage in a workforce increasingly shaped by green transitions, social accountability, and sustainability-linked regulations. MQF 2.0 thus positions GSA not as an adjunct but as a critical dimension of graduate attributes, encouraging Malaysian higher education institutions to transform curricula in ways that foster socially responsible, environmentally conscious, and governance-aware professionals who are resilient in facing global challenges.

3.4. Harmonisation with Sectoral Frameworks

The emphasis on harmonisation within MQF 2.0 2024 underscores the imperative for Malaysian higher education institutions to align their academic curricula with sectoral, occupational, and professional frameworks, ensuring that graduates possess competencies recognised by industries, regulatory bodies, and professional associations. This alignment bridges the gap between education and employment, equipping graduates with the technical proficiency, ethical foundations, and adaptability required in a rapidly evolving job market. Harmonisation involves mapping PLOs and CLOs to professional standards while maintaining consistency with the overarching MQF structure and quality benchmarks. It encourages structured collaboration with stakeholders such as industry advisory panels, licensing bodies, and accreditation agencies through joint curriculum design, embedded certifications, and real-world learning opportunities. These practices enhance program relevance without compromising academic rigor, ensuring responsiveness to technological advancements and labor market shifts. Importantly, harmonisation also supports graduate mobility across ASEAN through alignment with AQRF, enabling Malaysian qualifications to be recognised regionally and internationally. By embedding harmonisation within curriculum review cycles, higher education institutions can future-proof their programmes, enhance employability, and strengthen the global competitiveness of Malaysian graduates while safeguarding the academic integrity of the MQF system.

3.5. Relation of Course Outcomes, Learning Outcome Domain, Learning Outcome Cluster, and Dominant Learning Domain to the Four Emphases

The integration of MQF 2.0 2024's four emphases, Values-Based Education (VBE), Flexible Learning Pathways (FLP), the Global Sustainability Agenda (GSA), and Alignment with Sectoral Frameworks, into curriculum design is operationalised through the alignment of Course Learning Outcomes (CLOs) with Learning Outcome Domains (LOD), Learning Outcome Clusters (LOC), and Dominant Learning Domains (DLD). CLOs represent what students should be able to demonstrate upon completing a course and must be measurable, clearly stated, and systematically mapped to the five Learning Outcomes of MQF: Knowledge and Understanding, Cognitive Skills, Functional Work Skills, Personal and Entrepreneurial Skills, and Ethics and Professionalism.

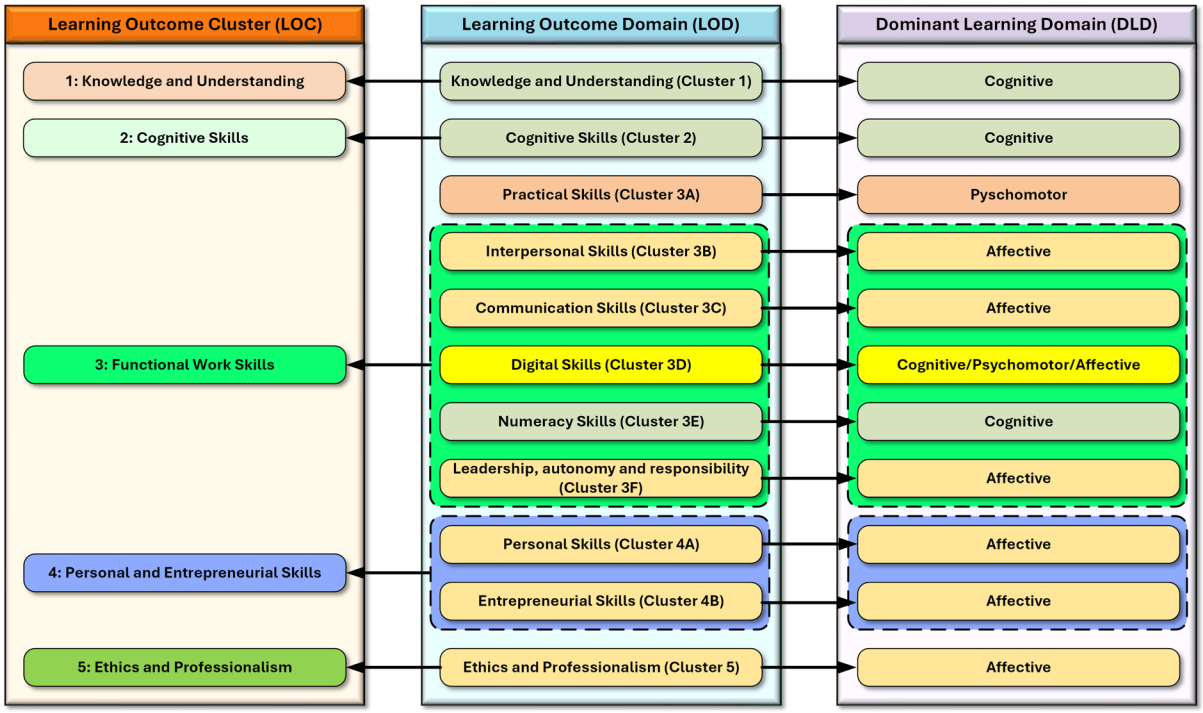

Figure 2. Relation of LOD with LOC and DLD in MQF 2.0 2024.

Each CLO is designed within a specific LOD and must also reflect the DLD, whether cognitive, affective, or psychomotor, ensuring a holistic approach to learning. For example, VBE is typically embedded in CLOs under Cluster 5, focusing on the affective domain to cultivate integrity, empathy, and ethical reasoning. FLP, aligned with Cluster 4, promotes self-directed learning and flexibility through micro-credentials and APEL, enabling lifelong learning. The GSA spans Clusters 1–4 and encourages sustainability-focused competencies aligned with the SDGs and ESG, utilising diverse domains to address complex global challenges. Meanwhile, sectoral alignment is reflected through CLOs mapped to Clusters 3 and 4, ensuring industry-relevant competencies and alignment with frameworks such as NOSS and MASCO. CLOs must be crafted using Bloom's taxonomy and clearly tagged with their respective LOCs and DLDs for traceability in audit tools, such as Table 4.xla. Figure 2 illustrates the relationship between LOCs, LODs, and DLDs, and Table 5 summarizes the alignment of the four emphases with CLO design. This approach ensures transparency, audit-readiness, and a curriculum that is not only compliant but purposefully oriented toward producing graduates who are ethical, sustainable, flexible, and professionally equipped.

Table 5 Relation of CLO, LOD, LOC, and DLD to MQF 2.0 Four Emphases

MQF 2.0 Emphasis	Relation to CLO, LOD, LOC, DLD
Values-Based Education	• Mapped under Cluster 5 (Ethics & Professionalism), focusing on the affective domain. • CLOs should include outcomes addressing ethical practice, integrity, and professionalism.
Flexible Learning Pathways	• Enables CLO design for micro-credentials, APEL, and blended delivery within the same LOD/LOC. • CLOs may include self-directed learning and lifelong learning skills under Cluster 4.
Global Sustainability Agenda	• Integrated in CLOs under Clusters 1–4 to address sustainability knowledge, skills, and attitudes. • Links CLO content to SDGs and ESD.

Alignment with Sectoral Frameworks	• CLOs should reflect industry-relevant competencies within Cluster 3 (Functional Work Skills) and Cluster 4. • Ensure alignment with NOSS, MASCO, and industry requirements while tagging under appropriate LOCs.

4. PROPOSED OPERATIONALISATION FRAMEWORK

The Proposed Operationalisation Framework, illustrated in Figure 3, offers a systematic and outcome-driven approach for embedding the Four Emphases of MQF 2.0 2024 into undergraduate and postgraduate programme curricula. This process begins by identifying PLOs that are aligned with the Malaysian Qualifications Framework's LODs, which are then mapped across enabling and culminating courses to ensure broad and structured coverage. CLOs are then refined to incorporate the Four Emphases, ensuring that teaching and learning activities are explicitly aligned with targeted outcomes. The framework accommodates modularity through microcredentials and stackable pathways, enabling learners to progress flexibly without compromising academic rigour. To maintain relevance and compliance, the framework incorporates continuous assessment aligned with CLOs, PLOs, and Programme Educational Objectives (PEOs), alongside experiential components such as work-integrated learning (WIL) and industry-linked projects. It also integrates cyclical curriculum review processes, typically every three to five years, to ensure ongoing quality enhancement and institutional audit readiness in line with MQA standards.

A critical element of the framework is the principle of constructive alignment, ensuring coherence between CLOs, instructional methods, and assessment strategies. This alignment promotes transparency and traceability while maintaining academic integrity across delivery modes. Central to this approach is the integration of sustainability, ethics, and professional competencies into curriculum structures to enhance graduate employability and social responsibility. Programme developers are empowered to embed ethical reasoning, teamwork, leadership, digital literacy, innovation, and sustainability into course design. Engagement with stakeholders, including industry panels, professional bodies, alumni, and students, ensures curricular content remains current and aligned with sectoral expectations. Benchmarking against national and international standards, such as the Washington Accord (WA) or the Malaysian Institute of Accountants (MIA), reinforces professional relevance. Triangulated data analysis from sources such as DOSM, MOHE Tracer Studies, TalentCorp, and MDEC informs curriculum adjustments in response to emerging trends. Standardised documentation tools, such as Table 4.xla, MQR-01/02, and Self-Review Reports, support audit preparedness, while internal checklists enable proactive compliance monitoring as institutions gear up for the 2026 MQA audit cycle.

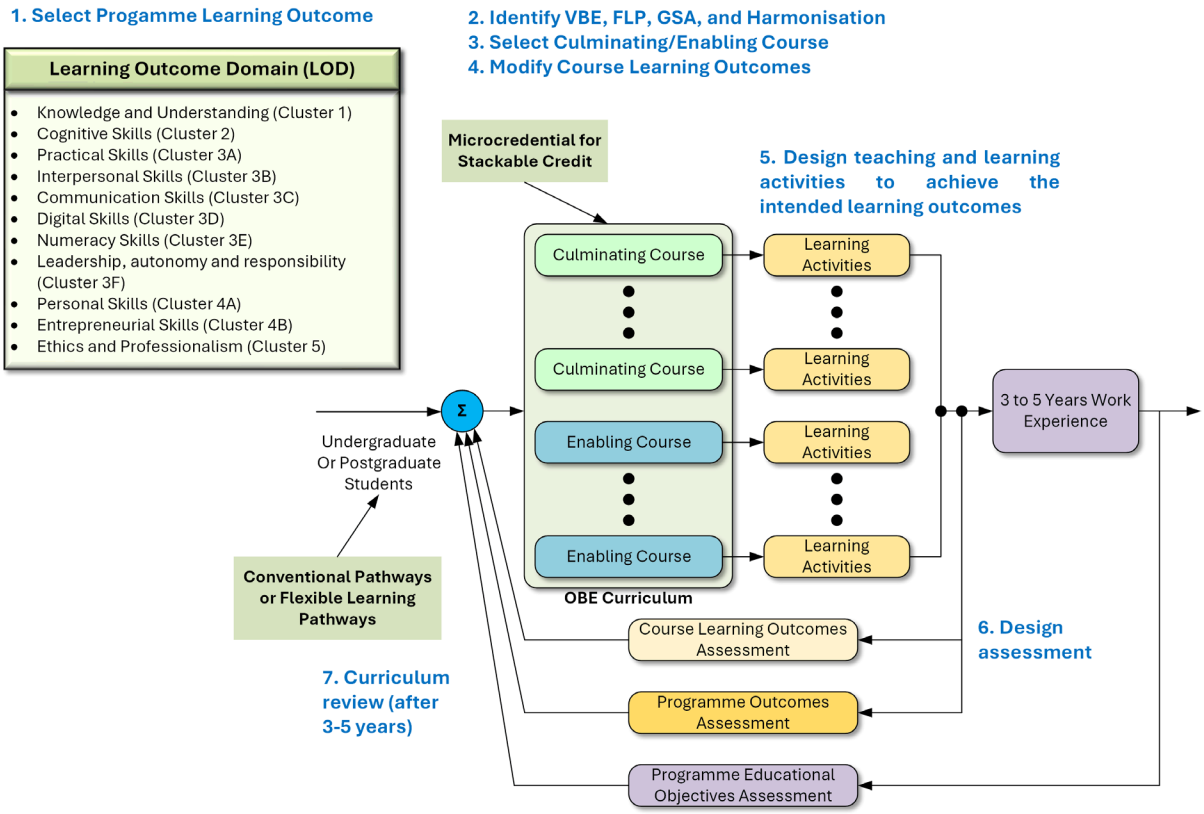

Figure 3. Proposed Operationalisation Framework in Curricula Adhering to MQF 2.0 2024.

To effectively deliver the Four Emphases, the framework promotes pedagogical strategies tailored to support holistic learning. These include values-based case studies that cultivate ethical reasoning and social responsibility, project-based learning (PBL) that encourages interdisciplinary collaboration and sustainability-focused outcomes, and experiential learning that connects students with real-world challenges. Table 6 summarises how these teaching and learning strategies are aligned with each emphasis, from embedding integrity and ethics (VBE), to flexible progression through microcredentials (FLP), sustainability integration (GSA), and industry-relevant skills (harmonisation). Assessment rubrics are designed to evaluate not just technical performance, but also ethical, professional, and sustainability dimensions, ensuring that graduates are prepared to apply their competencies in diverse, real-world contexts. By integrating these strategies throughout the curriculum, rather than isolating them within single modules, institutions foster continuous reinforcement of values and application of skills. This comprehensive operationalisation ensures that graduates are not only academically proficient but also ethically grounded, sustainability-minded, and ready to lead and innovate in complex global and industry landscapes.

Table 6 Samples of Teaching and Learning Strategies Aligned with Four Emphases of MQF 2.0 2024

T&L Strategy	Values-Based Education (VBE)	Flexible Learning Pathways (FLP)	Global Sustainability Agenda (GSA)	Harmonisation with Sectoral Frameworks
Values-Based Case Studies	Cultivates ethical reasoning and social responsibility	–	Can incorporate sustainability dilemmas	Aligns with professional ethics frameworks (e.g., EAC, MIA)
Microcredentials and Stackable Modules	Can include ethics and integrity modules	Supports modular, flexible progression and lifelong learning	Offers targeted sustainability skills microcredentials	Aligns with professional body CPD structures
Project-Based Learning (PBL)	Encourages teamwork and ethical decision-making	Allows interdisciplinary, flexible project choices	Enables sustainability-focused projects (e.g., SDG challenges)	Can incorporate industry-based projects for alignment
Experiential Learning	Promotes reflective practice and values internalisation	Can be used in flexible delivery modes	Involves community engagement and real-world sustainability initiatives	Meets sectoral requirements for practical exposure
Assessment Rubrics Including Values and Sustainability	Evaluates ethical dimensions in student outputs	–	Measures sustainability competencies	Includes professional practice and industry relevance criteria
Work-Integrated Learning (WIL)	Exposes students to ethical practice in real environments	Flexible modes of WIL (virtual, hybrid) support FLP	Addresses sustainability practices within industries	Aligns with professional and industry requirements for practice hours

5. CONCLUSIONS

The operationalisation of the MQF 2.0 Addendum 2024 within Malaysian higher education institutions signifies a strategic and transformative shift from compliance-based curriculum design to meaningful, outcome-driven implementation that supports national aspirations under the Twelfth Malaysia Plan and the Malaysia Education Blueprint. By embedding the Four Emphases, Values-Based Education, Flexible Learning Pathways, the Global Sustainability Agenda, and harmonisation with sectoral frameworks into programme review, teaching, learning, and assessment, the proposed framework fosters the development of ethical, adaptable, and industry-aligned graduates. While implementation poses challenges related to staff readiness, resource constraints, and translating abstract values and sustainability into measurable outcomes, these can be addressed through institutional support, targeted capacity-building, and authentic, values-infused pedagogy. The integration of microcredentials, flexible delivery modes, stakeholder engagement, and rigorous documentation further ensures audit readiness, programme relevance, and global competitiveness. Designed to be discipline-neutral and scalable, this operational framework enhances graduate mobility and institutional resilience, while reinforcing national priorities for human capital development. Future efforts will focus on

digitalising curriculum management and audit-readiness tools to streamline evidence tracking and implementation, ensuring that Malaysian higher education remains agile, responsive, and globally benchmarked in the evolving landscape of quality assurance and graduate outcomes.

ACKNOWLEDGEMENTS

We would like to extend our gratitude to the Ministry of Higher Education for the FRGS grant (FRGS/1/2023/SSI07/UIAM/01/2), which provided the financial support for this study.

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