Journal of Engineering Research and Education
*Volume 18, (Special Issue) 2026* [85-95]

# Embedding Tawhidic Epistemology in Engineering Education Aligned with IEA 2021 Graduate Attributes

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**ABSTRACT**

*Integrating Tawhidic Epistemology (TE) into engineering education offers a transformative, faith-based framework. It unifies technical competence with spiritual, ethical, and societal responsibility. Rooted in the Islamic worldview of Tawhid, i.e., the Oneness of God, TE affirms that revelation (wahy) and reason ('aql) are complementary sources of knowledge, guiding all inquiry toward ethical objectives aligned with Maqasid al-Shari'ah. This paper proposes a structured, scalable model for embedding TE within engineering curricula, explicitly aligned with the International Engineering Alliance (IEA) Graduate Attributes Version 4 (2021), which emphasizes ethics, sustainability, societal impact, and inclusive professionalism. The framework differentiates between Primary and Supportive TE Courses, enabling targeted curriculum enhancements without compromising technical rigor. TE integration strategies include reflection-based learning, project design with ethical framing, structured rubrics, lecture infusion, and case-based reasoning, all of which are applied across design projects, industrial training, and technical courses. These strategies are mapped to IEA attributes, including WA6 (Engineer and the World), WA7 (Ethics), WK5 (Sustainable Design), WK7 (Role in Society), and WK9 (Inclusive Behavior). This alignment ensures compatibility with global accreditation standards. By situating engineering education within a Tawhidic framework, this model fosters engineers who are technically proficient, spiritually anchored, and ethically conscious. It addresses identity gaps in Muslim academia while responding to global demands for more responsible, inclusive, and human-centered technological development.*

**Keywords:** Tawhidic Epistemology, Engineering Education, Islamic Worldview, *Maqasid al-Shari'ah*, Graduate Attributes, Outcome-Based Education, Ethical Engineering

## 1. INTRODUCTION

Tawhidic Epistemology (TE) represents a worldview grounded in the Islamic principle of *Tawhid*, the Oneness of God. It views all valid knowledge as ultimately related to divine unity and sovereignty. In this framework, knowledge is inherently ethical and teleological, serving spiritual, social, and environmental objectives that align with the *Maqasid al-Shari'ah* (the higher objectives of Islamic law). Revelation (*wahy*) and reason (*'aql*) are not opposing forces but complementary sources of knowledge, with revelation providing an ultimate reference point for inquiry and validation [1, 2]. TE guides science and technology toward holistic well-being, embedding spiritual accountability within knowledge production [3, 4]. Western secular epistemology emphasizes value-neutral empiricism and technological dominance [5, 6]. In contrast, TE offers a theocentric alternative, aligning engineering practice with worship, justice, and stewardship [7, 8]. As illustrated in Table 1, TE is distinct from other religious epistemologies, such as Christianity's reliance on faith and grace [9], Hinduism's liberation-focused cosmology [10], Buddhism's experiential wisdom [11], and Judaism's covenantal reasoning [12], by emphasizing divine unity as the source, goal, and ethical compass of all knowledge.

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Embedding TE in engineering education is urgent due to the growing ethical fragmentation in science and technology. These fields often overlook societal and environmental consequences [13, 14]. By grounding engineering knowledge within TE, education becomes a vehicle not only for technical excellence but for cultivating morally responsible, spiritually conscious professionals who see engineering as a form of *ibadah* (worship) and *amanah* (trust). Previous Islamisation efforts, particularly at institutions like IIUM, proposed integrating Islamic values into the curriculum [15]; however, they often fell short of aligning with outcome-based frameworks or accreditation standards, such as those governed by the Washington Accord. Other initiatives explored critical thinking from an Islamic lens [16] or proposed value-infused teaching modules [17]. However, they lacked modularity, pedagogical coherence, and integration with learning outcomes and assessment rubrics. More recent analyses have highlighted inconsistencies in educators' epistemological worldviews and the absence of clear instructional strategies for embedding Islamic ethics into scientific disciplines [18].

**Table 1** Comparison of Epistemologies Across Western and Major Religious Traditions

| Tradition | Key Sources of Knowledge | Final Goal of Knowledge | Notable Features |
|---|---|---|---|
| Western Secular | Reason, empirical observation | Technological progress, control over nature | Value-neutral, fragmented knowledge domains |
| Christianity | Revelation, faith, reason | Salvation, ethical living | Integration of faith with reason |
| Hinduism | Direct experience, inference, and scriptures | Liberation (moksha) | Holistic, cyclical cosmology |
| Buddhism | Experiential wisdom, meditative insight | Alleviation of suffering | Focus on impermanence and non-self |
| Judaism | Revelation (Torah), reason, tradition | Covenant, justice | Community-centered ethics |
| Islam (Tawhidic) | Revelation (wahy), reason ('aql) | Worship, justice, and societal well-being are aligned with Tawhid | Integration of ethics, spirituality, and knowledge |

Recent scholarship from Muslim-majority contexts has proposed diverse models for integrating Islamic or value-based epistemologies into STEM and engineering education. For instance, the structural and pedagogical challenges in embedding Islamic principles in engineering programs in Malaysia were highlighted in [19], emphasizing the need for balance between ethics and technical competency. Curriculum reform efforts in Indonesia and Pakistan were compared in [20] underscoring inconsistent epistemological foundations that hinder the systematic Islamisation of science and engineering education. However, these models often remain conceptually fragmented or institutionally localized. This framework builds on these foundations by aligning Tawhidic Epistemology with the globally recognized IEA 2021 Graduate Attributes. It offers a scalable and accreditation-compatible model for Islamic engineering education reform.

Responding to this gap, this paper proposes a practical framework that explicitly maps TE to the International Engineering Alliance (IEA) Graduate Attributes, Version 4 (2021), which emphasize ethics, sustainability, societal impact, and inclusive engineering practice [21]. While TE aligns conceptually with these goals, existing literature has yet to offer a pedagogically grounded model that operationalizes TE within an outcome-based education (OBE) framework. The model presented in this paper introduces Primary and Supportive TE Courses, TE-infused learning strategies, and assessment rubrics that preserve technical rigor while embedding value-centric learning. It is designed to be compatible with international benchmarks, offering a clear roadmap for curriculum designers and policy-makers. Section 2 elaborates on the foundation of IEA 2021 Graduate Attributes; Section 3 outlines the TE framework; Section 4 details the embedding

strategies in electrical engineering courses; Section 5 discusses institutional and pedagogical implications; and Section 6 concludes with recommendations for future reform in Islamic engineering education.

## 2. ENGINEERING EDUCATION BASED ON IEA 2021 GRADUATE ATTRIBUTES AND PROFESSIONAL COMPETENCIES

Engineering education plays a strategic role in producing professionals who are capable of solving complex societal and technological problems while upholding ethical and environmental responsibilities [22]. As nations advance toward developed status, engineering education becomes strategically vital, with an estimated need of 1,000–1,500 engineers per million population to sustain infrastructure, innovation, and industrial growth [23].

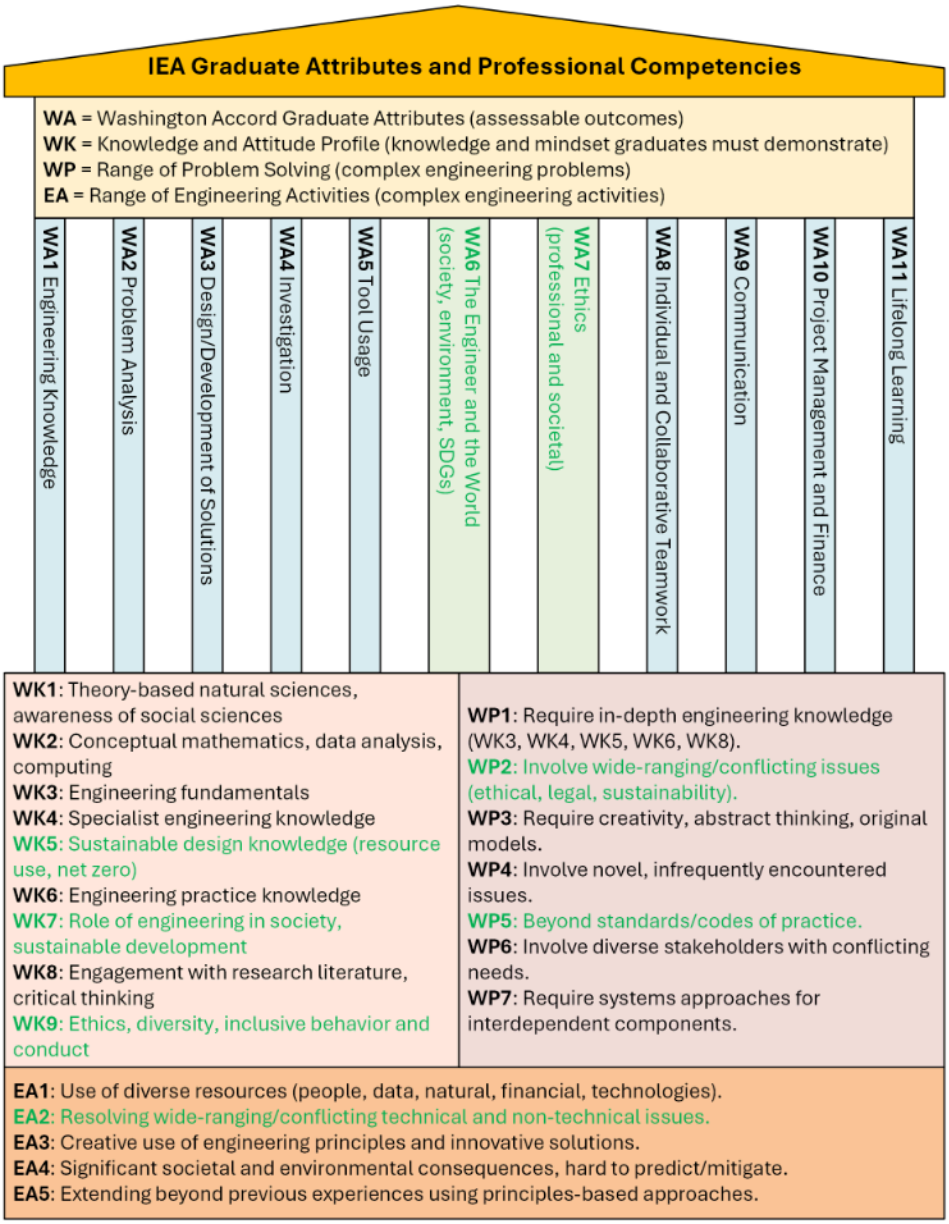


**Figure 1.** IEA Version 4 2021 Elements of Graduate Attributes and Professional Competencies (highlighted in Green for the strong relation to Tawhidic Epistemology).

As shown in Figure 1, the International Engineering Alliance (IEA), through its Graduate Attributes and Professional Competencies (GAPC), ensures that engineering graduates are prepared for global practice [24] via outcomes-based benchmarks recognized under the Washington Accord. The progressive development of the GAPC, from its foundational Version 1 (2005) to the current Version 4 (2021), reflects evolving expectations of the engineering profession, particularly in addressing sustainability, inclusivity, digital transformation, and ethical governance. Version 4 introduces more integrated and globally responsive outcomes, such as WA6 (The Engineer and the World), WA7 (Ethics), and WK7 (Role in Society & SDGs), which emphasize societal impact, environmental stewardship, and ethical conduct. These enhancements create new opportunities to align faith-based epistemologies, such as TE, with international engineering standards. As detailed in Table 2, the key tenets of stewardship (*amanah*), justice, ethical reasoning, and divine accountability are highlighted. It is naturally aligned with IEA outcomes and competencies, such as WP2 (Conflicting Requirements), WP5 (Beyond Standards), and EA2 (Conflict Resolution). This mapping confirms that integrating TE into engineering education supports accreditation standards. It also helps produce engineers who are technically skilled, ethically grounded, spiritually conscious, and committed to societal well-being, in line with *Maqasid al-Shari'ah*.

**Table 2** Comprehensive Mapping Between IEA Elements and Tawhidic Epistemology

| IEA Elements | Description | Relation to TE |
|---|---|---|
| WA6: The Engineer and the World | Analyzes societal, health, safety, legal, cultural, environmental, and sustainability impacts. | Aligns with TE's principle of stewardship (*amanah*), environmental ethics, and serving societal welfare under *Maqasid al-Shari'ah*. |
| WA7: Ethics | Applies ethical principles, professional standards, and demonstrates awareness of diversity and inclusion. | Reflects TE's inseparability of ethics from knowledge and professional action, upholding moral accountability. |
| WK5: Sustainable Design Knowledge | Knowledge supporting sustainable design, efficient resource use, net-zero carbon, and environmental impact. | Connects with TE's focus on sustainability, resource balance, and ethical responsibility in design as part of serving the creation responsibly. |
| WK7: Role in Society & SDGs | Understands the engineering profession's societal role and responsibility in promoting sustainable development. | Embeds TE's societal benefit and collective well-being concept aligns with Tawhid and the purpose of holistic knowledge. |
| WK9: Ethics & Inclusive Behavior | Commits to ethical conduct, inclusive behavior, and respect for diversity in professional practice. | Reinforces TE's call for ethical and inclusive conduct grounded in revelation (*wahy*) and reason (*'aql*). |
| WP2: Conflicting Requirements | Engineering problems involving conflicting technical and non-technical issues, including ethics, sustainability, legal, and societal aspects. | Highlights TE's perspective that engineering judgement must consider ethical conflicts, societal impact, and divine accountability. |
| WP5: Beyond Standards/Codes | Addresses problems not fully covered by existing standards and codes, requiring ethical and context-based judgment. | Resonates with TE's demand for ethical innovation beyond codified rules, guided by higher ethical objectives and Quranic principles. |
| EA2: Conflicting Issues Resolution | Resolves wide-ranging, conflicting technical and non-technical engineering issues, balancing stakeholder interests. | Embodies TE's emphasis on balancing competing stakeholder needs with ethical integrity, justice, and trust. |

## 3. PROPOSED FRAMEWORK ON EMBEDDING TE IN ENGINEERING EDUCATION

Figure 2 illustrates a structured framework for embedding Tawhidic Epistemology (TE) into engineering education, explicitly aligned with IEA Graduate Attributes Version 4 (2021.1) under the Washington Accord. The framework begins with these 11 graduate attributes, adopted nationally by the Engineering Accreditation Council (EAC) Malaysia as Programme Outcomes (POs), and mapped into the Outcome-Based Education (OBE) curriculum. Within this structure, TE is embedded through both UNICORE (university-required) and engineering core courses by categorizing them as either *Primary* or *Supportive* TE courses. The framework is built upon the visions of IIUM and the Kulliyyah of Engineering. It integrates TE into course design, content delivery, and assessment using strategies such as project-based learning, ethical reflection, and continuous quality improvement. The educational pathway culminates in structured industrial experience, reinforcing TE values such as stewardship (*amanah*), justice (*'adl*), and societal accountability in professional environments, ensuring graduates are intellectually competent, spiritually grounded, and ethically responsible.

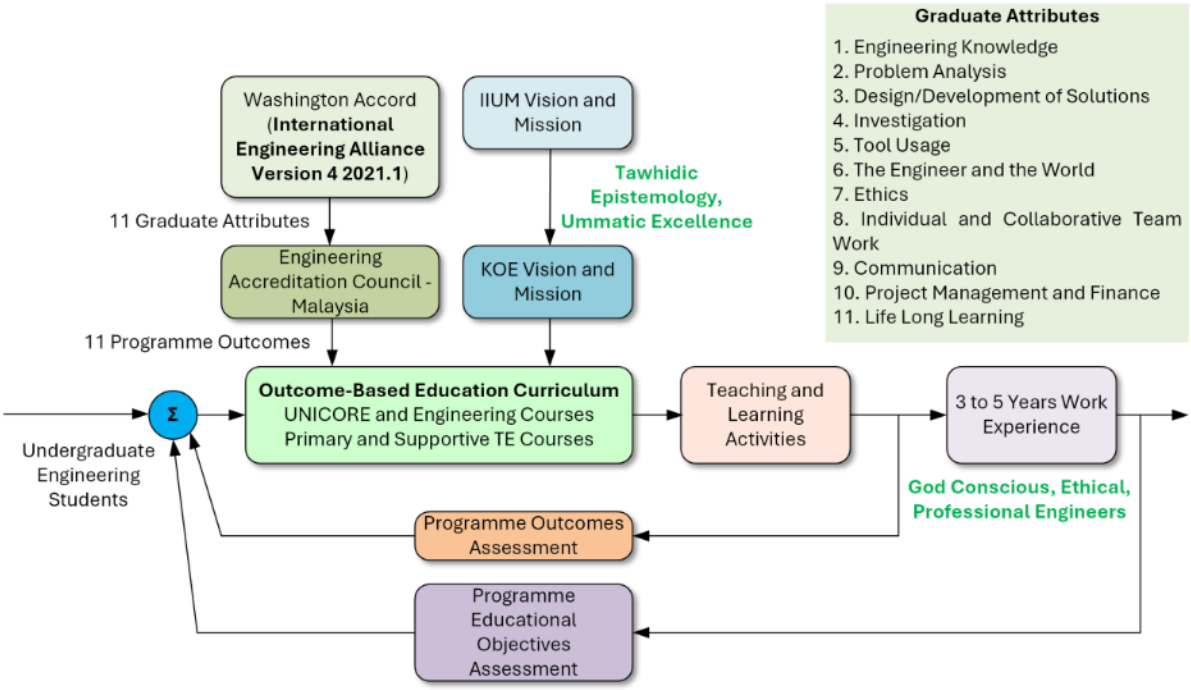


**Figure 2**. Framework on Embedding TE in Engineering Education.

**Table 3** Definition and Roles of Primary vs. Supportive TE Courses

| Category | Definition | Role in TE Implementation | Depth of Integration |
|---|---|---|---|
| **Primary TE Courses** | Courses explicitly designed to teach, apply, and assess Tawhidic Epistemology (TE) are typically epistemologically or ethically oriented or involve real-world decision-making, design, and societal impacts. | • Deliver TE content explicitly.<br>• Apply TE in design, ethics, and decision-making.<br>• Anchor TE in learning outcomes and assessments. | **High**: Integral to learning outcomes, assessments, and project deliverables. |
| **Supportive TE Courses** | Technical/skill-based courses that indirectly reinforce TE values through light curriculum | • Reinforce TE via light-touch integrations. | **Low to Moderate**: Selective reflections and examples, not core content. |

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| | adjustments (e.g., ethical prompts, reflections, or slides). | • Maintain technical rigor while connecting to Islamic values. | |

In this model, Primary TE Courses are those in which TE is explicitly taught, applied, and assessed, particularly in courses on ethical reasoning, societal impact, and epistemological inquiry, such as ethics, worldview, and capstone projects. These courses feature learning outcomes and rubrics centered on Islamic values like *Tawhid*, *Maqasid al-Shari'ah*, *Amanah*, and *Adl*. In contrast, Supportive TE Courses are primarily technical or skill-based, with TE values subtly reinforced through ethical case prompts, reflective assignments, or design considerations. Table 3 clarifies the roles and depth of integration between the two course types. As shown in Tables 4 and 5, this structure is applied in the Bachelor of Electrical and Electronics Engineering (BEEE) 2021 curriculum at IIUM. UNICORE courses, such as UNGS 1301, UNGS 2290, and UNGS 2380, function as Primary TE courses, focusing on TE foundations. Supportive courses, like LEED 1301 and SCSH 1201, introduce Islamic perspectives through relevant assignments and discussions. Similarly, in engineering-specific courses, Primary TE courses (e.g., GENE 4300, EECE 3300, FYP) include TE impact statements, ethical reflections, and spiritual accountability rubrics. Supportive TE elements in courses like EECE 4314 (Cybersecurity) and EECE 4333 (Renewable Energy) are delivered through light but purposeful integrations that maintain technical rigor while contextualizing engineering practices within a TE framework.

This layered, outcome-based approach offers a scalable, accreditation-friendly method for reforming Islamic engineering education. TE is no longer treated as a peripheral philosophy but is systematically embedded into the student journey, from epistemological grounding to technical application. By explicitly aligning TE with IEA Graduate Attributes such as WA6 (The Engineer and the World), WA7 (Ethics), WK5 (Sustainable Design Knowledge), WK7 (Role in Society & SDGs), and WK9 (Ethics & Inclusive Behavior), the framework ensures global compatibility and pedagogical integrity. As illustrated in Tables 4 and 5, each integration strategy is designed to reflect the nature of the course while reinforcing core Islamic values. This structure equips students with the tools to develop reflective, justice-oriented engineering solutions, fostering a professional identity that is both ethically conscious and spiritually guided.

**Table 4** Sample Implementation of TE Integration in UNICORE Courses

| Course | TE Category | Integration Strategy |
|---|---|---|
| UNGS 1301 Basic Philosophy and Islamic Worldview | Primary | Introduce TE explicitly: unity of knowledge, revelation & reason. |
| UNGS 2290 Knowledge & Civilization in Islam | Primary | Use historical Muslim scholars to explain integrated ethical knowledge. |
| UNGS 2380 Ethics and Fiqh of Contemporary Issues | Primary | Analyze contemporary issues using Maqasid al-Shari'ah frameworks. |
| LEED 1301 Academic Writing | Supportive | Assign essays/reflections linking ethics in science/engineering to the Islamic worldview. |
| SCSH 1201 Sustainable Development | Supportive | Introduce *Khilafah* and *Mizan* in sustainability ethics. |
| CCLM 2051 Leadership | Supportive | Discuss *Amanah* (trust) and ethical leadership responsibilities. |

**Table 5**. Sample Implementation of TE Integration in Engineering Courses

| Course | TE Category | Integration Strategy |
|---|---|---|
| GENE 4300 Engineering Ethics from Islamic Perspective | Primary | Teach TE explicitly; analyze engineering ethics using Islamic values and maqasid. |
| EECE 3300 Integrated Design Project | Primary | Add a TE impact statement in reports; reflect on *Amanah* and societal benefit. |
| EECE 3500 Engineering Industrial Training | Primary | Include a reflection on ethical practices (trust, justice, stewardship). |
| FYP I & II Final Year Project | Primary | Add TE reflection in proposal/conclusion; evaluate societal & ethical impacts. |
| EECE 4314 Cybersecurity | Supportive | Introduce *Amanah* and Islamic digital ethics in case studies/assignments. |
| EECE 4316 Artificial Intelligence | Supportive | Discuss AI ethics/bias via a TE lens; short debates/reflections. |
| EECE 4333 Renewable Energy & Green Technology | Supportive | Link sustainability to Islamic stewardship (*Khilafah*) and *Mizan*. |
| EECE 4315 Parallel Computing | Supportive | Use fairness metaphors to reflect *Adl* (justice) in scheduling discussions. |

## 4. TE LEARNING AND ASSESSMENT STRATEGIES IN PRACTICE

Several scalable strategies have been developed to embed TE meaningfully within engineering education. These align with OBE principles and IEA Graduate Attributes while supporting IIUM's mission to integrate spiritual, ethical, and technical excellence. *Reflection-Based learning* invites students to articulate how their engineering work benefits society and aligns with values such as *Amanah* (trust) and *Khilafah* (stewardship), through structured journals and "*Tawhidic Reflection*" sections in reports for FYP, design projects, and industrial training. *Case-Based Ethical Reasoning* bridges theory and practice by introducing real-world dilemmas analyzed through Islamic ethical frameworks such as *Maqasid al-Shari'ah*, particularly in ethics-focused and emerging tech courses like AI and Cybersecurity. *Design with purpose* incorporates TE Impact Statements in capstone and integrated design projects, asking students to consider ethical and spiritual outcomes alongside technical performance. *Lecture Infusion* incorporates light yet meaningful Islamic value references (e.g., *Adl* in fairness, *Amanah* in trust, *Khilafah* in sustainability) into technical lectures to foster ongoing ethical awareness without compromising the technical core.

**Table 6** Teaching and Learning Strategies for Embedding TE in Engineering Education

| Teaching Strategy | Where to Use | How | Examples |
|---|---|---|---|
| Reflection-Based Learning | FYP I & II, Integrated Design Project, Industrial Training, Engineering Ethics, *Usrah* | • Add '*Tawhidic Reflection*' sections in reports/presentations<br>• Weekly reflection journals | • How does your project serve the Ummah?<br>• What Islamic value guided your design? |
| Case-Based Ethical Reasoning | Engineering Ethics, Cybersecurity, Artificial Intelligence, UNGS 2380, UNGS 2290 | • Use Islamic case studies on real or hypothetical dilemmas<br>• Analyze using the *Maqasid* framework | • Is AI surveillance ethical in Islam?<br>• Apply *Maqasid* to autonomous vehicle ethics. |

| | | | |
|---|---|---|---|
| Design with Purpose (TE-Infused Projects) | Integrated Design Project, Final Year Projects, UNGS 2380, UNGS 2290 | • Require TE Impact Statements in project deliverables.<br>• Integrate TE in design criteria | • How does this system promote justice and sustainability?<br>• Assess designs using *Khilafah* & *Mizan* |
| Assessment-Integrated TE Indicators | All Primary TE Courses, Programme Documentation | • Embed TE criteria in rubrics (5-10%) and map to PO6, PO7<br>• Assess ethical reasoning formally | • FYP oral exams require discussing ethical/spiritual considerations<br>• Grading includes TE criteria |
| Lecture Infusion | Supportive TE Courses (e.g., Parallel Computing, AI, Cybersecurity), UNGS/GENE Courses | • Include 1-2 slides per module referencing Islamic values<br>• Frame discussions with TE principles | • Reference *Amanah* in cybersecurity, *Adl* in algorithm fairness, *Khilafah* in sustainability discussions. |

TE indicators are embedded directly into assessment rubrics to ensure measurable outcomes. They usually account for 5–10% of the grade and align with Programme Outcomes such as PO6 (Engineer and Society) and PO7 (Ethics). This integration ensures that TE is not merely aspirational but consistently evaluated and reinforced across the curriculum. Table 6 summarizes how these strategies are applied in both primary and supportive courses. In contrast, Table 7 provides examples of rubric indicators that operationalize core TE values, i.e., Amanah (trust and integrity), Adl (justice and fairness), and Khilafah (stewardship), within technical and ethical assessments. These measurable indicators help educators evaluate ethical accountability, fairness in decision-making, and sustainability considerations in student work. At the same time, Figure 3 illustrates the TE Learning Cycle, which unfolds through four reinforcing phases: (1) Foundational Understanding, where students acquire the Tawhidic worldview through UNGS and ethics courses; (2) Applied Integration, embedding TE reflections within technical design and analytical work; (3) Professional Practice, demonstrated through industrial training and capstone projects; and (4) Reflective Synthesis, culminating in Final Year Projects and professional self-evaluation. Collectively, these phases and assessment mechanisms form a coherent, accreditation-compatible model that nurtures engineers who are technically skilled, spiritually grounded, and ethically responsible.

**Table 7** Sample Rubric Indicators for Tawhidic Epistemology Assessment

| Criterion | Description | Indicator | Assessment Weight |
|---|---|---|---|
| **Amanah (Trust/Integrity)** | Demonstrates honesty and accountability in project execution and reporting. | Evidence of ethical compliance in data and teamwork. | 3% |
| **Adl (Justice/Fairness)** | Considers fairness, equity, and impact on all stakeholders in design decisions. | TE reflection or TE Impact Statement explicitly addresses fairness. | 3% |
| **Khilafah (Stewardship)** | Evaluates sustainability, social impact, and service to society. | The project includes sustainability considerations framed through Maqasid al-Shari'ah. | 4% |

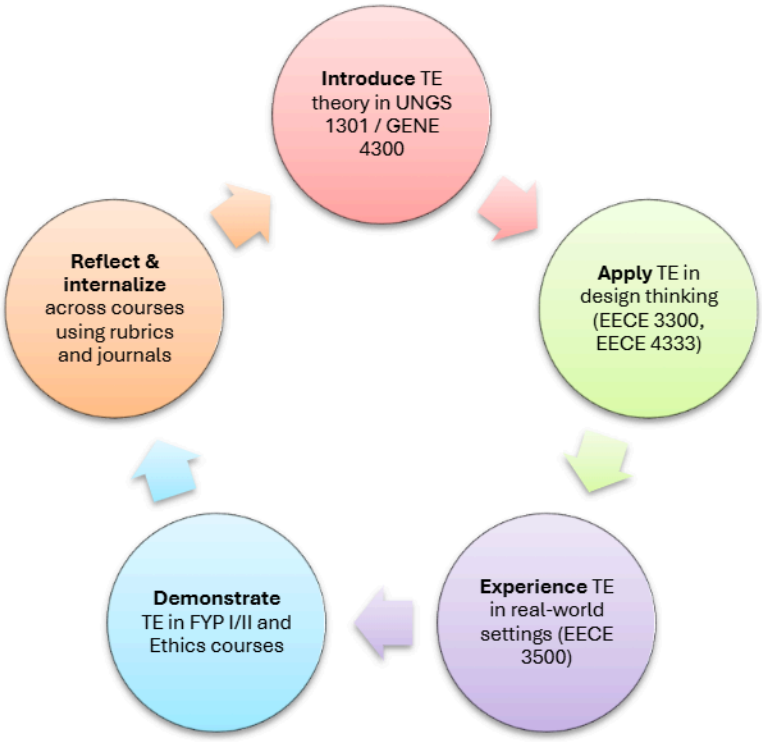


**Figure 3**. TE Learning Cycle in the Engineering Curriculum.

## 5. DISCUSSION

The proposed framework for embedding Tawhidic Epistemology (TE) within engineering education represents a significant shift from conceptual aspiration to structured operationalization. The framework systematically maps TE principles to the IEA 2021 Graduate Attributes and embeds them within an OBE system. This approach moves beyond philosophical discussion and creates a tangible curricular design. Through the TE Learning Cycle, students progressively engage with TE principles across their academic journey, beginning with theoretical grounding in early courses, applying them in design-centric and industrial training contexts, and demonstrating them explicitly in their Final Year Projects. This structured integration aligns the core Islamic values of *Tawhid*, *Maqasid al-Shari'ah*, and ethical accountability with modern accreditation standards, cultivating engineers who are both technically competent and spiritually anchored.

A critical strength of the framework lies in its instructional strategies, which ensure that TE is not an optional supplement but a central pedagogical thread. Reflection-based learning, case-based ethical reasoning, TE-infused project design, assessment-integrated indicators, and lecture infusion collectively reinforce the integration of spiritual and ethical dimensions in technical contexts. For instance, TE Impact Statements in capstone projects and structured rubrics in courses like GENE 4300 and EECE 3500 actively engage students in reflecting on the societal, ethical, and spiritual implications of their work. These strategies align with Programme Outcomes such as PO6 (Engineer and Society) and PO7 (Ethics), enabling students to internalize Islamic ethical values while meeting global engineering benchmarks.

Nevertheless, the framework's effectiveness must ultimately be demonstrated through empirical validation. Future pilot testing across selected courses will be essential to evaluate how students engage with TE-infused activities and whether these interventions enhance ethical reasoning, reflective practice, and the formation of a professional identity. Questions about students' ability

to align technical decisions with spiritual accountability and societal benefits are central to this inquiry. Equally important is understanding students' reception and perception of the integration of faith-based ethics into technical courses. Although this paper focuses on curriculum design, the pedagogical and experiential dimensions presented will guide future empirical studies and serve as the basis for refining the implementation of TE across diverse learning environments.

Institutional and faculty readiness are crucial for success. Educators need both confidence and tools to integrate TE effectively without reducing technical depth. Faculty development initiatives, including workshops, peer mentoring, and shared communities of practice, can support this transformation by promoting consistency, quality, and best practices in delivery and assessment. Feedback from students, industry partners, and accreditation bodies should inform continuous improvement, ensuring the relevance and rigor of TE integration. While the framework is contextualized within IIUM's Islamization vision, its core components, such as the TE Learning Cycle, reflective strategies, and ethical rubrics, are adaptable across institutions. Mapped to global accreditation outcomes and grounded in universal ethical concerns, the framework provides a scalable model that can be contextualized across cultures and educational systems, advancing Islamic engineering education reform in both local and international contexts.

## 6. CONCLUSIONS

This study presents a structured, scalable, and accreditation-aligned framework for embedding Tawhidic Epistemology (TE) in engineering education. It operationalizes Tawhid as a unifying principle that integrates ethical, spiritual, and societal considerations into technical curricula without compromising academic rigor. By explicitly mapping TE to the IEA 2021 Graduate Attributes and incorporating it through reflection-based learning, case-based ethical reasoning, TE-infused project design, assessment-integrated rubrics, and lecture infusion, the framework offers practical strategies to cultivate engineers who are technically competent, spiritually grounded, and ethically responsible. The use of Primary and Supportive TE courses, supported by clear rubrics and the TE Learning Cycle, ensures TE is systematically embedded rather than treated as a peripheral add-on, aligning engineering practice with the higher objectives of Maqasid al-Shari'ah. This integration addresses identity challenges within Muslim engineering education while contributing to the global shift toward human-centered, ethically conscious technological development. As engineering education evolves to meet the demands of sustainability, inclusivity, and ethics, TE offers an indigenous, faith-integrated paradigm that fosters moral accountability. While this paper focuses on framework development, future work will pilot it in selected courses to assess its impact on students' ethical reasoning, reflective practices, and professional identity, thereby providing evidence-based insights to refine the integration of TE in engineering education.

## 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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