



REPORT ON TRAINING OF ENGINEERING LECTURERS ON OUTCOME-BASED EDUCATION (OBE) STANDARDS

Nairobi Region

Venue: TransCentury Auditorium, Strathmore University Business School

Dates: 4th – 6th March 2026

Organizer: Engineers Board of Kenya

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1.0 EXECUTIVE SUMMARY

The Board successfully conducted a three-day training workshop for lecturers on Outcome-Based Education (OBE) hosted at Strathmore University, TransCentury Auditorium, Strathmore University Business School.

The workshop brought together engineering lecturers, heads of departments, and academic administrators from twelve (12) universities offering engineering programmes within the Nairobi cluster.

The training aimed to strengthen the capacity of university lecturers and academic leaders in the design and implementation of Outcome-Based Education curricula, in line with EBK Engineering Accreditation Standards and the requirements of the Washington Accord.

The workshop was facilitated by international and local experts, including representatives from the Board of Engineers Malaysia, who shared global best practices in engineering education accreditation and OBE curriculum design.

Key thematic areas covered during the training included:

- i. Alignment of programme vision with institutional vision and mission
- ii. Development of Programme Educational Objectives (PEOs)
- iii. Mapping of PEOs to Programme Outcomes (POs)
- iv. Mapping of Course Outcomes (COs) to Programme Outcomes
- v. Development of appropriate assessment methods
- vi. Design of structured Course Outcome frameworks

Participants also engaged in discipline-specific breakout sessions for Civil Engineering, Electrical and Electronics Engineering, and Mechanical Engineering to allow deeper engagement with OBE implementation within their respective disciplines.

The workshop concluded with a guided tour of Strathmore University engineering facilities, including laboratories and workshops, to provide participants with insights into infrastructure that supports effective engineering education delivery.

Overall, the training enhanced participants' understanding of Outcome-Based Education frameworks, strengthened institutional readiness for OBE implementation, and promoted collaboration among engineering faculties across participating universities.

2.0 INTRODUCTION

The Engineers Board of Kenya is mandated under the Engineers Act, 2011 to regulate engineering education and practice in Kenya.

In fulfilling this mandate, the Board accredits engineering programmes offered by universities to ensure that they meet the required standards for the training of professional engineers.

As part of Kenya's efforts to align engineering education with international standards under the Washington Accord, engineering programmes are required to adopt Outcome-Based Education (OBE) frameworks.

Outcome-Based Education emphasizes the achievement of clearly defined learning outcomes that ensure graduates possess the knowledge, skills, and professional attributes required for engineering practice.

To support universities in transitioning towards OBE-aligned curricula, the Engineers Board of Kenya organized a training workshop for lecturers from universities within the Nairobi cluster.

The workshop aimed to strengthen institutional capacity in designing, implementing, and assessing engineering programmes based on Outcome-Based Education principles.

2.1 Legal Basis

The training is based on the following legal basis:

- a. Engineers Act 2011 Section 7(1)(r).
- b. Engineers Rules 2019, Fourth Schedule; and
- c. Engineers Accreditation Standards.

3.0 RATIONALE

Having acceded to the Washington Accord, there was need to create capacity amongst lecturers to understand OBE and its application. There was therefore needed to transition engineering lecturers from use of traditional teacher-centered approach to student-centered learning methods in the delivery of engineering education. The training was to:

- a) Enhance lecturers' capacity to design and deliver OBE-aligned curricula;
- b) Standardize interpretation of Washington Accord requirements;
- c) Promote student-centered and evidence-based teaching practices;
- d) Support universities in preparing for OBE-based accreditation; and
- e) Contribute to Kenya's pathway toward Full Signatory Status under the Washington Accord.

3.1 Objectives of the Training

The training aimed to strengthen the capacity of engineering lecturers and university staff to implement Outcome-Based Education in engineering programmes in line with EBK accreditation standards and Washington Accord requirements.

The specific objectives were to:

- a) Enhance understanding of OBE principles and their application in engineering education.

- b) Equip lecturers with practical skills for designing OBE-aligned curricula, learning outcomes, and assessment methods.
- c) Strengthen institutional capacity for curriculum mapping and alignment between Programme Educational Objectives (PEOs), Programme Outcomes (POs), and Course Outcomes (COs).
- d) Promote student-centred teaching approaches and evidence-based assessment practices.
- e) Support universities in preparing for OBE-based accreditation and continuous quality improvement.

4.0 TRAINING PARTICIPANTS

The workshop brought together participants from twelve (12) universities offering recognized engineering programmes within the Nairobi cluster. The training targeted academic and administrative personnel who play a central role in the design, delivery, and quality assurance of engineering programmes.

Participants from universities included:

- 1) University of Nairobi
- 2) Jomo Kenyatta University of Agriculture and Technology
- 3) Kenyatta University
- 4) Multimedia University of Kenya
- 5) South Eastern Kenya University
- 6) Machakos University
- 7) Murang'a University of Technology
- 8) Chuka University
- 9) University of Embu
- 10) Technical University of Kenya
- 11) Dedan Kimathi University of Technology
- 12) Strathmore University

The diversity of participants ensured that discussions during the workshop addressed both academic and institutional dimensions of implementing Outcome-Based Education (OBE).

In total, representatives from twelve universities participated in the training, reflecting strong institutional commitment toward strengthening engineering education and aligning programmes with Outcome Based Education standards and Washington Accord requirements.

5.0 TRAINING PROGRAMME AND FACILITATION

The training was conducted over three days and involved a combination of technical presentations, plenary discussions, practical exercises, and breakout sessions.

Key facilitators included:

- i. Eng. Grace Onyango, CE – Director, Capacity Building & Accreditation / Head, Engineering Accreditation Committee (EAC)
- ii. Eng. Ir. Abdul Aziz Omar – Board of Engineers Malaysia

Additionally, the workshop featured discipline-specific breakout sessions led by experienced master trainers to provide practical guidance on implementing OBE within specific engineering disciplines.

The breakout sessions were facilitated as follows:

- i. Civil Engineering - Eng. Prof. Emmanuel Kipkorir, PE
- ii. Electrical and Electronics Engineering - Eng. Paul Ochola, CE
- iii. Mechanical Engineering - Eng. Dr. Hiram Ndiritu, PE

6.0 WORKSHOP PROCEEDINGS

The training was conducted over three days, combining presentations, interactive discussions, breakout sessions, and a guided institutional tour.

DAY 1: – Setting the Foundation

The first day focused on the regulatory context, international best practices, and the fundamental principles of OBE.

- **Session 1: Regulatory and Legal Framework:** Following the introductions, Eng. Grace Onyango, CE, Director of Capacity Building & Accreditation, delivered a comprehensive presentation on the legal basis for the transition. She guided participants through key documents, including the Engineers Act 2011, the Engineers Rules 2019, and the new Engineering Accreditation Standards. She emphasized that these standards would now serve as the "bible" for all engineering programmes.
 - **Key Changes Under the New Standards:** Eng. Onyango highlighted several critical changes:
 - **New Criteria on Students:** A new criterion focusing on student intake, progression, and support was introduced, reflecting the OBE emphasis on what students can do.
 - **Accreditation Decision-Making:** The process has been strengthened with the introduction of a moderation stage by the Head of EAC to ensure reports are objective and meet standards before being tabled at the Accreditation Management Sub-Committee and the Board.
 - **Revised Accreditation Outcomes:** The previous binary outcomes (5 years, 2 years, decline) have been refined. Five-year accreditation now requires "no major concerns," while two-year accreditation is granted when there are no more than two major concerns. Programmes with more than two major concerns or failure to address previous issues may face decline.

- **Emphasis on Professional Registration:** Eng. Onyango stressed the new emphasis on faculty holding professional qualifications, noting the existence of an academia model for professional registration to facilitate this.
- **Continuous Quality Improvement (CQI):** She underscored that CQI is central to the Washington Accord. Universities must demonstrate mechanisms for collecting feedback from Industry Advisory Boards, alumni, and students, and closing the loop to improve programmes.
- **Transparency and Documentation:** She called on universities to ensure their websites are updated with quality policies, programme outcomes, and accredited status, as this is a key requirement for transparency.
- **Kenya's Historic Achievement:** Eng. Onyango proudly announced that Kenya's application for Provisional Signatory Status was historic, as it was the first time in the International Engineering Alliance's history that a country received all 20 votes.
- **Session 2: International Perspective on OBE:** A key highlight was a virtual presentation by **Eng. Ir. Aziz from the Board of Engineers Malaysia**. As a mentor to Kenya under the Washington Accord, he shared invaluable insights from Malaysia's 20+ year journey in OBE implementation.
 - **The Philosophical Shift** - Ir. Aziz described OBE as a fundamental "flip mindset" from traditional content delivery. "We are not just teachers or lecturers, we are also facilitators," he stated, emphasizing the need to design curricula based on the desired graduate outcomes.
 - **The Wholesome Engineer** - He stressed the importance of developing the "humane part" of an engineer the affective domain, which includes teamwork, communication, ethics, and emotional intelligence. This, he argued, is what will differentiate human engineers from AI.
 - **Change Management and Leadership** - Ir. Aziz noted that OBE requires a "mindset, even a cultural change" and that management commitment from Deans, DVCs, and VCs is crucial. He praised the presence of management staff at the training as a "good start for Kenya."
 - **Crafting Outcomes, Not Statements** - He emphasized that Programme Educational Objectives (PEOs), Programme Outcomes (POs), and Course Learning Outcomes (CLOs) must be "crafted, not just produced." They are a "plan to act," not just statements.
 - **New Knowledge Profile (KP9)** - Ir. Aziz introduced the new knowledge profile on ethics, diversity, and inclusivity (DEI). He explained that this must be practiced in teaching, for example, by grouping students with diversity in mind to achieve this outcome.
 - **Constructive Alignment** - He explained the importance of aligning teaching and assessment methods with the desired outcomes, suggesting a move away from over-reliance on high-stakes final exams toward more

continuous, formative assessment. "You don't kill a student because of the final exam, because that only builds cognitive capability," he remarked.

- Call to Action - He concluded by urging participants to ensure Kenya does not experience the delays that other jurisdictions faced, emphasizing that the next three years will require "major, massive changes."
- **Plenary and Way Forward:** The day ended with a plenary session where participants engaged with both local and international facilitators. The participants were reminded to download the accreditation standards from the website and announced the call for expressions of interest to become programme evaluators, especially for emerging fields like biomedical and chemical engineering.

DAY 2: Official Opening, Disciplinary Breakouts, and Curriculum Mapping

The second day was the core technical day, dedicated to curriculum design and alignment.

- **Official Opening by Registrar/CEO:** The day began with the official opening of the workshop by the Registrar/CEO, **Eng. Margaret N. Ogai, CE**. Her remarks (as per the talking notes) underscored the legal mandate under the Engineers Act 2011, the strategic target of growing the number of professional engineers to 10,000, and the critical importance of the Washington Accord. She emphasized that OBE is a philosophical shift and called upon university leadership to allocate resources for its implementation. This powerful address set the tone for the intensive work ahead.
- **Session 5: Formulating Outcomes:** Following the opening, Master Trainers guided participants through the process of formulating Programme Educational Objectives (PEOs), Programme Outcomes (POs), and Course Learning Outcomes (CLOs). A key focus was articulating the clear connection between the IHL's University Vision and Mission, the Programme Vision, and the PEOs.
- **Sessions 6 & 7: Disciplinary Breakout Sessions - Practical Curriculum Mapping:** This was the most intensive part of the workshop. Participants broke into three parallel disciplinary groups, each facilitated by a dedicated Master Trainer:
 1. **Civil Engineering:** Facilitated by Eng. Prof. Emmanuel C. Kipkorir, PE
 2. **Mechanical Engineering:** Facilitated by Eng. Dr. Hiram Ndiritu, PE
 3. **Electrical & Electronics Engineering:** Facilitated by Eng. Paul Ochola, CEUsing their own course materials, participants engaged in hands on exercises to:
 4. Map PEOs to the university's mission and programme vision.
 5. Map POs to the PEOs.
 6. Map CLOs to POs.Facilitators provided guidance on the design of a typical Course Outcome (CO) structure. This discipline-specific approach allowed for deep, relevant discussions and helped participants identify gaps and misalignments in their current curricula.

- **Day Review:** The day concluded with a plenary where groups shared their mapping challenges, fostering peer learning across disciplines. Master trainers noted the overall collaborative engagement.

DAY 3: Assessment, Facilities Tour, and Way Forward

The final day focused on assessment strategies, institutional readiness, and a practical look at OBE-aligned facilities.

- **Session 8: Teaching, Learning & Assessment:** Master Trainers led a session on OBE-aligned teaching strategies (like Problem-Based Learning) and assessment methods. This included an articulation and clarification of various assessment methods and the development of rubrics.
- **Session 9: Institutional Readiness and Self-Assessment Reports (SARs):** Eng. Grace Onyango presented on the structure of the Self-Assessment Report (SAR). She conducted a gap analysis exercise, prompting departments to evaluate their readiness for an accreditation visit against the EBK checklists, leading to a preliminary gap analysis report.
- **Tour of Strathmore University Labs and Facilities:** A key highlight of Day Three was a guided tour of Strathmore University's engineering laboratories and facilities. Participants observed firsthand the type of infrastructure and resources that support OBE-aligned, experiential learning. The tour provided practical ideas for lab development, safety standards, and the integration of facilities into the curriculum to achieve specific learning outcomes.
- **University Gap Analysis Exercise:** As part of strengthening institutional preparedness for accreditation under the Outcome-Based Education (OBE) framework, participating universities undertook a structured gap analysis exercise during the final session of the workshop.

The exercise was designed to enable institutions to critically assess the status of their engineering programmes against the requirements of the Board Engineering Accreditation Standards and Washington Accord expectations. Using a standardized Gap Analysis Template developed by the Engineers Board of Kenya, participants evaluated their programmes across key areas including curriculum design, outcome mapping, assessment methods, faculty qualifications, laboratory facilities, governance structures, and Continuous Quality Improvement (CQI) mechanisms.

Participants worked in institutional teams to review their programmes and identify areas of compliance, existing gaps, and priority actions required to strengthen alignment with Outcome-Based Education requirements. The exercise also provided an opportunity for peer learning and facilitated discussions among universities on practical strategies for addressing identified gaps.

The completed gap analysis templates provided useful insights into the varying levels of preparedness among participating universities, highlighting both strengths and areas requiring further institutional attention.

A summary of the institutional assessments based on the *Gap Analysis Template* is provided in *Annex I: Universities Gap Analysis Template and Assessment Results*.

7.0 AREAS COVERED IN THE TRAINING

The workshop covered several critical components of Outcome-Based Education in engineering programmes, including:

- a) Articulation and alignment of programme vision with the institutional vision and mission
- b) Development of Programme Educational Objectives (PEOs) aligned to programme vision
- c) Mapping of Programme Educational Objectives to Programme Outcomes (POs)
- d) Mapping of Course Outcomes (COs) to Programme Outcomes
- e) Development of appropriate assessment methods for measuring learning outcomes
- f) Design of structured Course Outcome frameworks
- g) Practical walkthrough of an integrated design project based on Strathmore University's approach.
- h) Analysis of the level of preparedness of universities for OBE accreditation.

These topics enabled participants to develop a clearer understanding of the OBE framework and its application in engineering programme design and delivery.

8.0 KEY OBSERVATIONS

Several observations emerged during the workshop:

- i. Participants demonstrated strong enthusiasm and willingness to adopt Outcome-Based Education frameworks in their institutions.
- ii. The training enhanced participants' understanding of the overall structure and philosophy of OBE and how it compares with existing teaching and curriculum frameworks.
- iii. Universities are currently at different stages of readiness regarding the adoption and implementation of OBE curricula.
- iv. The interactive delivery approach, particularly the breakout sessions, fostered collaborative engagement among participants.

8.1 Key Challenges Identified

Participants and facilitators identified several challenges that need to be addressed for successful OBE implementation:

i. Technical Capacity Gaps in Course Design:

- a) Difficulty in formulating clear, measurable, and assessable learning outcomes, with many Course Outcomes (COs) developed without reference to Bloom's Taxonomy, resulting in poorly structured learning outcomes.
- b) Many COs focus primarily on recognition and recall rather than higher-level competencies such as analysis, design, and application.
- c) In many cases, COs exceed the recommended maximum of five, making assessment and alignment more difficult.
- d) Assessment mapping remains a grey area for many lecturers, particularly in linking specific assessments to COs and POs.
- e) Calculation of Student Learning Time (SLT) remains poorly understood by many participants.

ii. Regulatory and Policy Uncertainty:

- a) Apprehension about potential conflicts between the OBE framework and other national frameworks, such as those from the Commission for University Education (CUE), particularly regarding the duration of engineering programmes and the rollout of Competency-Based Education (CBE).
- b) Questions were raised about the level of preparedness of EBK, CUE, and universities for the admission of CBE students expected in 2029.
- c) Concerning the depth of mathematics and science coverage in the Senior School curriculum and its impact on future engineering students' preparedness for OBE-aligned programmes.

iii. Institutional Readiness and Support:

- a) Varying levels of management appreciation and buy-in across different IHLs.
- b) Concerns about sourcing and resourcing (laboratories, digital systems, faculty time) to meet OBE requirements.
- c) Potential conflicts between individual IHL statutes and the requirements for OBE curriculum adoption.

- iv. Workload and Systems** - Lack of institutional systems and standardized templates to support OBE implementation, leading to concerns about increased workload related to documentation and assessment tracking.

9.0 RECOMMENDATIONS

To strengthen future OBE training and institutional implementation, the following actions are recommended, drawing from both participant feedback and facilitator observations:

For EBK and EAC:

- i. Targeted leadership engagement to address management buy in, EAC should organize condensed "Breakfast Sessions" (e.g., 40 minutes) for Deputy Vice Chancellors (DVCs) and Academic Registrars to secure top-level commitment.
- ii. Specialized training for support staff to develop a condensed training module specifically for Quality Assurance Officers and Finance Officers, as their role is critical for institutionalizing OBE systems and resource allocation.
- iii. Enhanced practical focus in future trainings:
 - d) Allocate more time for hands-on workshops on the practical mapping of Course Outcomes (COs) to Programme Outcomes (POs) and maintain the discipline-specific breakout structure.
 - e) Include more practical sessions on aligning individual course units with the OBE framework.
 - f) Dedicate specific sessions to understanding and calculating Student Learning Time (SLT).
 - g) Include practical development of assessment rubrics for assignments, laboratory work, and integrated design projects to support transparent and consistent assessment aligned with Programme Outcomes.
- iv. Review of existing course outcomes to encourage and support universities to review and streamline existing COs, aiming for three to four well-structured outcomes per course.
- v. Stakeholder engagement on policy to initiate consultations with the Commission for University Education (CUE) to harmonize OBE requirements with national university education frameworks, alleviating participant concerns about conflicting standards. A draft letter has been prepared for this purpose.
- vi. Review of senior school curriculum to engage with the relevant education authorities to review the depth of mathematics and science coverage in the Senior School curriculum to ensure it adequately prepares students for OBE-aligned engineering programmes.
- vii. Development of standardized tools to create and disseminate standardized templates and guidelines for outcome mapping, assessment reporting, and Continuous Quality Improvement (CQI) processes.

For Institutions of Higher Learning (IHLs):

- i. Establish Internal OBE Committees - Universities should form internal OBE committees or appoint champions to coordinate implementation, peer mentoring, and monitoring at the departmental level.

- ii. Provide Post-Training Mentorship - institutions should leverage the trained lecturers to conduct internal workshops and provide follow-up mentoring to colleagues, particularly on technical areas like CO formulation, assessment mapping, and SLT calculation.
- iii. Resource Allocation - University management must explicitly allocate resources for laboratory modernization, assessment systems, and faculty development to support the OBE transition.

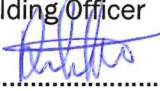
10.0 CONCLUSION

The Nairobi Regional Training on Outcome-Based Education was a resounding success, achieving its immediate objectives of sensitizing and equipping over 100 lecturers with the skills needed for OBE implementation. The workshop not only clarified the technical requirements of the Washington Accord but also galvanized a community of practice committed to quality engineering education. The inclusion of an international mentor, the discipline specific breakout sessions, and the facilities tour provided a well-rounded and highly effective capacity building experience. The enthusiasm of the participants and the specific, actionable feedback provided by the master trainers have laid a solid foundation for the subsequent regional training.

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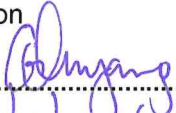
Signature: 

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Date: 11/3/2026

Approved by:

Eng. Margaret N. Ogai, CE

Registrar/Chief Executive Officer

Signature:

Date:

ANNEXES

Annex I: Universities Gap Analysis

Annex II: Attendance List

Annex III: Photographs of the Workshop



