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A Proposed Roadmap of Transition to the New EAC-ABET Student Outcomes*

MUHAMMAD SALEEM[1], ASIF UZ ZAMAN[2], MOHAMMED AMAN[1] and FAISAL ALBATATI[3]
[1] Department of Industrial Engineering, Faculty of Engineering, Rabigh, King Abdulaziz University, Kingdom of Saudi Arabia. E-mail: msaleim1@kau.edu.sa
[2] Department of Civil and Environmental Engineering, Faculty of Engineering, Rabigh, King Abdulaziz University, Kingdom of Saudi Arabia.
[3] Department of Mechanical Engineering, Faculty of Engineering, Rabigh, King Abdulaziz University, Kingdom of Saudi Arabia.

Criterion 3 – Student Outcomes (SOs), defined by Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET), is one of the General Criteria for baccalaureate level engineering programs seeking accreditation. SOs were first drafted nearly three decades ago with an intent to shift to outcome-based education. Since then, except for some minor changes in Criterion 3 (C3), the set of SOs remained unchanged. It was only in fall 2017 that EAC of ABET revised C3 and other sections with approval from the Engineering Area Delegation (EAD). The major feature of this amendment is the use of new language for C3 modifications and definitions. The revision has resulted in seven new SOs (1–7) replacing the previous eleven SOs (a–k). These changes have obligated engineering programs, scheduled for a General Review from the 2019–20 cycle onwards, to manifest and practice a structured transition to the new SOs assuring as much implementation as practical. The authors, through this paper, have attempted to propose a transitioning model from the old SOs (a–k) to the new ones (1–7). The proposed Key Performance Assessee (KPA) model could be a promising tool in addressing the latest recommendations of the EAC's changes to criteria 3 and definitions while being easy to adopt. This model is structured on the performance indicators based on the platform of C3 with new definitions. With the help of KPA model, the seemingly difficult process of transition is expected to become simple and easy.

Keywords: student outcomes; transition; performance indicators; criterion 3

1. Introduction

The Accreditation Board for Engineering and Technology (ABET) is an authoritative body that accredits programs in applied and natural science, computing, engineering and engineering technology. For each of these disciplines, there are separate accreditation commissions that are committed to review and enhance discipline specific criteria, policies and procedures. The accreditation commission responsible for engineering programs is Engineering Accreditation Commission (EAC) [1].

ABET accreditation of a program is a testament of the required quality standards of the profession for which that program prepares its graduates. It also serves as a useful tool toward enhancing students' learning and employment opportunities [2, 3]. That is the reason behind an immense escalation in the number of programs across the world obtaining accreditation by this US-based non-governmental and non-profit organization. Until now, 4,144 applied and natural science, computing, engineering, and engineering technology programs at 812 colleges and universities in 32 countries have been accredited by the ABET [4].

EAC is committed to addressing the ever-changing needs of academia, industry, and the world as a whole. For the last few years, EAC was continually challenging itself to have a closer look especially at Criterion 3 (C3). Their persistent endeavors to keep up to the expectations of potential stakeholders resulted in proposing changes to some of the EAC's criteria. The Engineering Area Delegation (EAD) on October 20, 2017 approved the recommended changes in the language of C3, C5 and introduction, including definitions, with the intent to be applicable beginning in the 2019–20 cycle [5]. The changes in the introduction, including definitions, are applicable and relevant to all the engineering accreditation criteria.

One of the pivotal parameters of gauging the quality of an engineering program in meeting the global standards of technical education is the evaluation of the extent of the program's resolution and attitude in addressing the EAC's C3-Student Outcomes. The student outcomes (SOs) are a set of competencies pertinent to the knowledge, skills, and behavior of the students that they acquire during their developmental progression through the program [6]. These SOs for which students are expected to be prepared in a program are usually clustered in the form of a well-defined, structured, and articulated set of learning outcomes.

The defined SOs, along with any supplementary

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SOs articulated by a program toward underpinning the Program Educational Objectives (PEOs), need to be explicitly documented and addressed by the program seeking ABET accreditation. This specific aspect is required to be satisfied as part of C3 requirements. The diversity, relevance, and richness in defining the SOs and addressing them accordingly in a program are one of the viable yardsticks of the programs' competitiveness in the global workforce. One of the ways of addressing SOs in a program is through mapping the courses to them, which is a complicated process [7–12].

The revised SOs (1–7), with enriched amended language, are better placed to prepare the students in catering to the present demands of the ever-growing competitive professional world market by incorporating extra elements in the definitions such as complex engineering problem, engineering design, team diversity and teamwork, etc. [13]. These new state-of-the-art SOs (1–7) are relatively exhaustive, overarching, and broader in their scope. They encapsulate in each of them more than one central element of the skills, knowledge, and behavior that the students are expected to gain. Therefore, each of the new SOs is believed to be composed of a variety of discrete elements of the attributes that students acquire during their progress through the program.

The SOs are required to be integrated into the curriculum by diligently mapping them to the courses they can possibly be aligned with. At the same time, they should be measurable in a consistent and reliable manner providing ease and confidence to the academics assessing them. A simple merger of some of the old SOs to form new SOs would not be able to comprehensively comply with the overall ambit of the latest revisions of the EAC [14] as by this way, the merged SOs would not be able to address the extra elements of the definitions of complex engineering problems, team, engineering design etc. Therefore, in order to align the courses to the new SOs and assess them accordingly, each of the new SOs are required to be comprehensively defined by a pool of a variety of elements that cumulatively convey the overall scope of that particular SO. Then, each element of a specific SO could be easily aligned to the courses with which it relates to.

However, in the absence of any such mechanism to define the SOs into its discrete elemental building blocks conveying the complete scope, the transition from the old SOs (a–k) to the new ones (1–7) seems a bit challenging, confusing and ambiguous. While complying with all the requirements of the revision, an ideal transition should be comprehensive, easily adaptable, and pragmatic to defy even the slightest of the anxiety and fuss in its adoption [15].

Although, there is no paradigm shift in the intend of C3 but the nuances of the new language of the SOs and their wide scope demand a reliable, easy to deploy, and smooth transition. To realize this objective, the authors have proposed a framework of Key Performance Assessees (KPAs) by augmenting, restructuring, and synthesizing EAC's official performance indicators of the 2018–19 cycle on the platform of C3 with new definitions.

KPAs are expected to support academics toward mapping the courses to the relevant SOs. KPAs are proposed with an aim to assist academics in measuring the attainment level of these new SOs (1–7) in a comprehensive, consistent, and reliable manner. Each of these KPAs, related to its respective and relevant SO, could be explicitly measured, and is specifically distinct componential element of student performance required to delineate that particular SO.

The students are prepared to acquire these SOs through a variety of means during their progress through the program. The integration of SOs is assured in engineering courses alone since engineering faculty members have the capacity to have a direct influence on the courses taught within the program only. Although, student learning in math and basic science courses enhances the achievement of outcomes, however, engineering faculty members have no consistent ability to influence change in those courses. Due to this reason, majority of engineering programs resort to satisfying C3 with the engineering core courses only. This is the rationale to limit the mapping and assessment of SOs to the core courses only.

Individual learning outcomes of a course could be mapped to the specific elements of the SOs to which that course is aligned to. These specific elements of SOs, coined as KPAs by the authors, could be assessed by a variety of means as appropriate to the outcome being measured. Thus, the measurement of all relevant KPAs measure the SO for a course. The various means to assess SOs range from their direct assessment during course work to the faculty feedback, student feedback etc.

This paper is an attempt to present forth KPA model that would possibly aid the engineering fraternity in exercising an easy and smooth transition to the new EAC-ABET SOs.

2. Historical Background of the Changes in the EAC–ABET Criteria approved by the EAD

ABET keeps its criteria relevant, fresh, and compelling to keep abreast of the changing needs of its various constituencies. It periodically takes their feedbacks, arranges seminars, forums, and carries out extensive discussions with its criteria committee, program evaluators (PEVs) etc. By doing so, ABET gets a closer look at the criteria and when needed brings out appropriate revisions in the required criteria.

Other than having a change in the title of the C3 from Program Outcomes to Student Outcomes (SOs) in the 2008–09 cycle, the C3 had not been substantially changed for the last nine years or so [16]. EAC's leadership had in its cognizance that each year the substantial percentage of shortcomings cited were mainly associated with the C3. Moreover, for many years the criteria committee was receiving numerous requests from the member societies of ABET. The requests were to widen the spectrum of C3 by supplementing it with more outcomes while removing the cited shortcomings. To address the issue, an especially devoted task force was constituted in 2009 with the objective of providing its proposals to the full criteria committee. Since then, a series of chronological progression of events eventuated to yield an EAD approval of EACs proposals. The revisions in the introduction, including definitions, C3 and C5 were accepted and finally were approved in 2017.

The findings of the C3 task force led to the replacement of the earlier eleven SOs (a–k) with the revised seven SOs (1–7) with a new language. The rationale behind the revision of C3 is that some of the earlier SOs (a–k) were practically impossible to measure (especially SOs d, f, h, i & j) because of being vague and broad in scope and interdependent demanding an appropriate revision [17, 18]. Moreover, there were also many requests from the member societies of ABET to add more elements to C3. To comply with all these requirements, the revised SOs (1–7) were intended with the promise of being better measurable, realistic, relevant, fresh and compelling in systematically assessing the knowledge, skills and behavioral progression of the students through the program.

An impeccable and appropriate interpretation of the changed language of the introductory section, including the definitions and C3 of the EAC is paramount in the preparedness of the programs aspiring reaccreditation or fresh accreditation to avert any misunderstandings. Keeping this requirement in mind, the present paper is proposed hoping that it may benefit the engineering fraternity towards transiting to the new SOs without any ambiguity.

3. Rationale of the proposed KPA Model Framework

In the wake of the latest EAD's approved changes in the language of the introduction, including definitions, C3 and C5, all the programs scheduled for a general review from the 2019–20 cycle onwards should embrace the transition as needed to assure as much implementation as pragmatic for the next general review [19]. This specific requirement has obligated programs, either seeking accreditation for the first time or renewing their existing accreditation, to reflect the latest changes in their programs. The programs must provide appropriate and legitimate evidence of the transition from the old SOs (a–k) to the new ones (1–7).

As mentioned in the previous section, the wide scope, and the introduction of some new elements in the SOs' statement have warranted the need to devise a transition model. The model should best comply with all the latest changes introduced by the EAC in a comprehensive and reliable manner. One of the models for exercising the transition is to either merge some of the old SOs to form a SO closely relating to the EAC's new SO or align some of the old SOs directly to the new SOs. One such model of transition is adapted here in Table 1 and inferred in Table 2 [20]. However, this type of model lacks comprehensiveness and addresses partially the overall requirements of the EAC's latest revision, demanding a need for a more comprehensive model.

The transition approach of the model presented in Table 1 is simply and succinctly shown in Table 2. The general understanding of the model is that it was developed by either integrating some of the old SOs into one broad statement that was then appropriately mapped to its relevant new SO or by simply practicing a one to one mapping of some of the old SOs to their relevant new ones, as reflected in Table 2. This way, the scope of the suggested model of Table 1 remains restricted in the domain of the scope of the old SOs (a-k) only, without being able to incorporate some of the additional elements of the EAC latest revisions like complex engineering problems, use of engineering judgment, engineering design, etc.

Therefore, the model presented in Table 1 is apparently capable of addressing the latest EAD approved changes to a partial extent only. It does not encompass the additional elements of the revisions as appropriately as desired. Thus, it confines the scope of the model practically to the purview of the old SOs only. Moreover, the suggestive conceptual alignment of the old SOs to the new ones, in this specific model, may be misconstrued by some of the academics leading to the engendering of doubts and ambiguities in their minds. They may misconceive it as a simple practice of establishing some of the new SOs by merely combining the most relevant old SOs without eradicating the earlier vagueness, interdependency, and broadness in the scope of some of the old SOs. These misinterpretations and

Table 1. A suggested mapping of the old SOs (a–k) to the new SOs (1–7)

Current Language **EAC Criteria effective 2017–18 and 2018–19 Cycles**	**New Language** **Approved by the EAD October 20, 2017** **Applicable beginning in the 2019–20 cycle**
Criterion 3. Student Outcomes The program must have documented student outcomes that prepare graduates to attain the program educational objectives. Student outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program.	**Criterion 3. Student Outcomes** The program must have documented student outcomes that support the program educational objectives. Attainment of these outcomes prepares graduates to enter the professional practice of engineering. Student outcomes are outcomes (1) through (7), plus any additional outcomes that may be articulated by the program.
(a) an ability to apply knowledge of mathematics, science, and engineering (e) an ability to identify, formulate, and solve engineering problems	1. an ability to identify, formulate, and solve **complex engineering problems** by applying principles of engineering, science, and mathematics
(b) an ability to design and conduct experiments, as well as to analyze and interpret data	6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	2. an ability to apply **engineering design** to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
(d) an ability to function on multidisciplinary teams	5. an ability to function effectively **on a team** whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
(f) an understanding of professional and ethical responsibility (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context (j) a knowledge of contemporary issues	4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
(g) an ability to communicate effectively	3. an ability to communicate effectively with a range of audiences
(i) a recognition of the need for, and an ability to engage in life-long learning	7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	Implied in 1, 2, and 6

the apparent inadequacies associated with this model would obliterate the EAC's astounding efforts of addressing the findings of the 2009 specially constituted task force.

Various authors have reported on methodologies for such a transition with different degrees of fulfilment of the EAC's latest recommendations on the changes to criteria 3 and definitions. To the best of our knowledge, almost all the authors have suggested equivalencies of the old SOs (a-k) to the new SOs (1–7) as mentioned above [13, 16, 20, 21] either by exercising a one-to-one mapping of the old SOs to the new ones or by combining some of the old SOs and then mapping the combination to the equivalent new ones. This practice of mapping the old SOs to the new SOs by regarding them as the equivalents may create a route for ambiguities/doubts/false notions etc. to ingress into the minds of the academics involved in the transition process. It may be misinterpreted as the mere reduction of the old eleven SOs to the new seven SOs which invalidates the need of the latest revision. The direct mapping does not address the comprehensive requirements of the new definitions of the EAC especially those of complex engineering problems, team, engineering design etc.

After reviewing the available studies on the transitioning process, it is apparent that almost all these studies suggest a methodology of equivalent mapping of the old SOs (a–k) to the new ones (1–7) without reflecting the inclusion of some of the new definitions like complex engineering problems, teams etc. in the mapping. To address the inadequacies and shortcomings of the earlier available studies on the subject and to suggest a more comprehensive approach towards completely fulfilling the EAC's latest recommendations pertinent to criteria 3 and definitions, the KPA model is proposed. Our proposed model attempts to improvise over the earlier approaches in a way that is distinct by being not a simple mapping of the old SOs to the new ones but ensuring that the additional requirements of the new definitions are being addressed and met. The KPAs in the model are designed to target the new definitions of complex engineering problems, teams, engineering design etc.

The authors' proposal of KPA model for transition was guided by the experiences gained and lessons learnt from the last successful ABET accreditation of programs at their affiliated institution reviewed in 2016. With the next comprehensive

Table 2. A schematic representation of the SOs mapping: old (a–k) to new (1–7)

		Old SOs a–k										
		a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**
New SOs 1–7	**1**	√				√						√
	2			√								√
	3							√				
	4						√		√		√	
	5				√							
	6		√									√
	7									√		

review due in 2022–23, the proposed model can aid the respective programs in the process of reaccreditation as well as potentially benefit other similar programs in the process of switching over to the adoption of the new EAC-ABET student outcomes.

This manuscript is intended as a proposal to assist in realizing a smooth transition to the new SOs from those that were in effect prior to 2019. The authors, being the members of the Quality and Accreditation Committee, have already implemented this proposed model in their respective programs in a hope to address all the latest revisions of the EAC pertinent to the criteria 3 along with the new definitions and are awaiting the next comprehensive review scheduled in 2022–23. The submitted manuscript is simply a suggestive model proposed to aid in realizing a transition from those SOs that were in effect prior to 2019 to the new SOs.

4. The KPA Model and its Structural Configuration

The authors have proposed a framework of Key Performance Assessees (KPAs) by augmenting, restructuring, and synthesizing EAC's official performance indicators of the 2018–19 cycle [22] on the platform of C3 with new definitions. The authors have purposely coined the term Key Performance Assessees against the conventional term Key Performance Indicators (KPIs) to implicate subtle distinction in the usage and connotation of the two apparently cognate entities. The KPAs are purportedly used by the authors in the same spirit as of KPIs with a slight variation in the essence and nuances of the expression and substance conveyed by the term KPAs. The KPAs are proposed to delineate intended special connotation which KPIs conventionally are constraint to portray by being more standard, well-defined and precise in meaning. So, if any additional meaning, direction, or notion is intended to be described by an entity, that the standard term KPI does not regularly convey, then one has to resort to a term which is very close in essence to the standard term but could be used to convey the supplementary meaning and sense. That is why, the authors have proposed to use KPAs instead of KPIs in order to exhibit and express their intended purpose. The term KPA is introduced to signify that, collectively, a specific set of KPAs describes the complete sense and meaning of the SO to which these KPAs are related and belong to. Sets of KPAs are proposed to give an impression that each of the KPAs within a set could be assessed separately and collectively they define and describe the complete sense and meaning of its pertinent SO. As each KPA, within its own set, could be assessed separately describing partially the SO to which it is related and belongs, the authors coined them as Key Performance Assessees (KPAs) to indicate that each of them can be assessed on its own hence complying with the definition of the word *assessee*. Despite the expression Key Performance Assessees not being conventionally used to refer to the performance of the students, it has been proposed to convey the special sense and meaning that the authors intended to, which was not, in totality and at best, feasible to be conveyed with the term KPIs. The KPAs are introduced in the same spirit of KPIs with an objective to provide a slight additional leverage by the KPAs in conveying the essence and nuances of the expression and substance desired by the authors.

The KPA model is proposed to address the shortcomings related to the vagueness, broadness in scope and interdependency of some of the old SOs. These shortcomings in some of the old SOs (d, f, h, i, and j) were posing challenges and difficulties in the measurement of these SOs to the extent that these SOs were even regarded as impossible to measure.

Unlike the inferences drawn from the model presented in Table 2 above, the KPA model does not encourage the verbatim and as–is adoption of the old SOs (d, f, h, i, and j) to form the new SOs 4, 5, and 7. Instead, the appropriate statements pertinent

Table 3. New SOs 1–7 with their relevant KPAs

1	**An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.**
1.1	An ability to understand/interpret and/or apply mathematical/scientific and/or engineering terms and/or concepts.
1.2	An ability to identify/formulate/analyze and/or solve engineering problems.
1.3	An ability to select and/or apply techniques and/or tools (including computer-based and others) for a specific engineering task.
1.4	An ability to choose a mathematical model of a system or process appropriate for required accuracy in order to solve a problem within reasonable constraints.
1.5	An ability to examine approaches to solving an engineering problem in order to choose the more effective approach.
1.6	An ability to demonstrate an understanding of how various component parts or sub problems of the problem relate to each other and the whole.
1.7	An ability to involve multiple disciplines (within/Outside the Program) to address a particular engineering problem.
1.8	An ability to come up with a solution having significant consequences in a range of context (like the consequence of a solution to the society, economy, environment, prosperity, development, economics, future research etc.).
2	**An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.**
2.1	An ability to develop a design strategy to meet desired needs.
2.2	An ability to apply engineering and/or basic sciences/mathematics principles/standards/codes to design a system, component, or a process to meet desired needs and specifications.
2.3	An ability to produce a clear and unambiguous requirements/needs statement in a design project by identifying constraints of the problem and establishing criteria for acceptability and desirability of solutions.
2.4	An ability to carry solution through to the most economic/desirable solution following iterative approaches of evaluation, analysis, and synthesis of the problem by using computer tools or other resources and to justify the approach by evaluating solutions against requirements.
2.5	An ability to identify the environmental and social issues involved within the suggested design by taking into consideration public health, safety, and welfare.
2.6	An ability to identify and consider risks (retain/eliminate) in the design while making trade-offs between incompatible desirables.
3	**An ability to communicate effectively with a range of audiences.**
3.1	An ability to organize written materials in a logical sequence and appropriate technical style format to enhance the reader's/ audience's comprehension.
3.2	An ability to make appropriate use of graphics, tables, figures, visual aids etc. to communicate effectively with a range of audiences.
3.3	An ability to listen carefully and respond to questions appropriately; able to explain and interpret results for various audiences and purposes.
3.4	An ability to form a sentence syntactically (grammatically) and semantically (sensibly conveying meaning) valid.
3.5	An ability to enhance communication by maintaining proper body language, persona, and clarity of speech (oral).
4	**An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.**
4.1	An ability to understand code of ethics for the discipline.
4.2	An ability to display professional responsibilities in engineering situation by proposing a solution to an engineering problem based on an informed judgment governed by the analysis based on economic, environmental, and social contexts.
4.3	An ability to avoid plagiarism in the reports, assignments, or homework.
4.4	An ability to evaluate conflicting/competing social values in order to make informed decisions about an engineering solution.
5	**An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.**
5.1	An ability to recognize participant roles in a team setting and fulfill appropriate roles to assure team success.
5.2	An ability to integrate input from all team members and make decisions in relation to objective criteria.
5.3	An ability to improve communication among teammates and ask for feedback and uses suggestions.
5.4	An ability to demonstrate the ability to monitor team progress and make suggestions when needed.
5.5	An ability to engage team members in problem solution.
6.	**An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.**
6.1	An ability to Observe good lab practice including safety procedures.
6.2	An ability to collect and document relevant data.
6.3	An ability to select and operate equipment, tools or methods etc. for measuring the appropriate variables to get required data.
6.4	An ability to use appropriate tools/methods to analyze data and verify and validate experimental/analytical results.
6.5	An ability to draw conclusions based on the obtained results.
7.	**An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.**
7.1	An ability to seek information, without guidance, to solve a problem.
7.2	An ability to apply self-acquired knowledge for problem solving.
7.3	An ability to research a topic from various resources.

to the KPAs targeting SOs 4, 5 and 7 have been proposed expecting to allow their measurement feasible, pragmatic, and easy to deploy.

The KPA model is proposed with an intention to allow the assessment of the students' ability in dealing with complex engineering problems, engineering judgment, teamwork, and engineering design etc. which some of the academics fail to do so with the direct model presented in Table 1.

Each of the KPAs related to its respective and relevant SO could be explicitly measured, and is specifically distinct componential element of the students' performance(s) required to delineate that particular SO. The cumulative scope of the KPAs of a specific SO defines that SO in a comprehensive manner in line with the latest EAD approved changes.

The new SOs (1–7) along with their relevant KPAs are shown in Table 3.

5. Conclusion

The authors, through this paper, have attempted to propose the *KPA model* as a possible methodology to be adopted in the process of transition from the old ABET SOs (a–k) to the new ones (1–7). The model is proposed as a means to help academics in addressing the latest amendments introduced in the EAC's Criterion 3 along with the inclusion of the new definitions in their transition process. To the best of the authors' knowledge, most of the available models or transition methodologies reported by other authors on the same subject, are predominantly simple and straight mappings of the old SOs to the new ones without explicitly taking into consideration EAC's new definitions into their mapping plans. The authors conclude that if the EAC's new definitions are not reflected in the transition plan and only a straight mapping of the old SOs to the new ones is practiced, then the whole purpose of the EAC's latest revision together with all the efforts to improvise over the last version of SOs (a–k) would go in vain, invalidating its very need. The straight mapping of the old SOs to the new ones, without restructuring of the old SOs to include the new definitions, would be misleading to many, giving the impression that the new SOs are nothing but a mere merger or combination of the old SOs, devised to simply reduce the outcome count from eleven to seven, which is actually not the case. This inadequacy of the available models in conveying the true sense and requirement of the transition is attempted to be removed by the proposed KPA model, which is essentially structured on the concept of performance indicators based on the platform of C3 encompassing the new definitions of EAC to completely convey the true sense and connotations of the new SOs (1–7). The authors have proposed this model hoping that it would overcome the shortfalls of the past models while being able to serve as a sounding board to interested researchers providing them with a platform to improvise this model further toward assessing student performance with much more ease and conviction.

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The authors of this work are members of the Quality and Accreditation Committee at the Faculty of Engineering, King Abdulaziz University, Rabigh (KSA). The committee is committed to providing guidance on effective approaches pertinent to accreditation modalities. The experience gathered over the years dealing with the ABET accreditation related activities formed the framework for the present study. The authors envisaged challenges and concerns in the process of transition to the new SOs after the 2017 EADs approval of C3 and related sections. In order to address those challenges and concerns and to deal with them in the best possible way, the authors have come up with this present paper.

Muhammad Saleem obtained his PhD in Engineering from the University of Federal Armed Forces, Munich, Germany in 2011. He remained a faculty member in the Department of Industrial Engineering at the University of Duisburg-Essen, Germany from 2011 to 2015. Since 2016, he is a faculty member in the Department of Industrial Engineering at King Abdulaziz University, Rabigh. His work is focused mainly towards Technical Risk Management, Design of Experiments, Industrial Quality Control, and Artificial Intelligence. He is actively involved in curriculum development and accreditation processes of engineering programs.

Asif uz zaman earned his Master's and Bachelor's degree both in Civil Engineering major from Aligarh Muslim University, AMU, Aligarh (India). His Master's degree specialization is in Environmental Engineering. Since 2011, he has been serving as a faculty member in the Department of Civil Engineering at King Abdulaziz University, Rabigh. Prior to 2011, he served in Indian institutes as an academician for nearly 5 years. Besides teaching and research, he has been actively involved in the development and accreditation activities of the engineering programs at the Faculty of Engineering in Rabigh. His research interest areas include biological treatment of wastewater, sustainability, water conservation, and solid waste management.

Mohammed Aman has a Master's degree in Industrial and Systems Engineering from the University of Southern California, Los Angeles CA (USA) and a Bachelor's degree Production Engineering from Birla Institute of Technology, Ranchi (India). He worked as a Business Analyst from 2005–2011 at consulting firms in the USA and India. Currently, he is currently serving as a faculty member in the Department of Industrial Engineering at King Abdulaziz University, Rabigh. As the head of the departmental Quality & Development committee, he successfully managed the ABET accreditation project for the BSIE program by serving as the key point of contact. His academic interests include coursework design, development and accreditation, as well as industrial liaison and interdisciplinary research. He has also been involved in teaching and training in supply chain management, industrial information systems, and entrepreneurship.

Faisal Albatati obtained his PhD in sustainable energy technologies engineering from the University of Nottingham, UK in 2015. He has been an Assistant Professor of Mechanical Engineering at King Abdul Aziz University, KSA since 2015. Dr. Albatati's work focus on waste heat recovery, water desalination, and thermal power generation and energy storage systems. Dr. Albatati is a chartered engineer with Engineering Council, UK, a member of the Institution of Engineering and Technology (Ceng MIET). Dr. Albatati has been directly involved in ABET activities at the faculty of engineering at Rabigh as a member of the quality and accreditation unit since 2015 and as vice dean for development since 2017.