Harmonising Outcome-Based Education Accreditation Framework and International Educational Standard ISO 21001:2018

Dr. P.S. Grover, FIEEE

KIIT College of Engineering, Sohna Rd, Bhondsi, 122102 Gurgaon Haryana India

drpsgrover@gmail.com

Abstract -- **We have examined and analyzed features of the latest International Educational Standard ISO21001:2018 and Outcome-based Accreditation Framework of National Board of Accreditation (India), with a view to explore and harmonize the essentials between them. Both systems are based on Outcome-based Education paradigm and emphasize continuous improvement of student learning outcomes and education experience. It is observed that NBA system maps to ISO to the extent of nearly 65~70%. Institutions, which have acquired NBA accreditation for their programs, can easily expect to have ISO 21001:2018 certification by incorporating data security and some other features in the system, thereby deriving the advantage of international certification and recognition as well.**

Keywords: Outcome-based Education, Accreditation, ISO21001:2018, Harmonization.

I. INTRODUCTION

ENSURING quality in higher education has been of great concern to everyone all over the world. Educational standards and accreditation frameworks have been designed to prepare, implement and assess quality processes and practices. ISO 21001:2018 [1] has been the *latest global standard* in the education sector to define and implement quality system in educational organizations. Accreditation frameworks are mainly at the national level. There are no accreditation frameworks which are standardized or accepted all over the world by educational organizations. However, an accreditation framework may be harmonized [2] to the international standard to understand how they are related as regards the similarities and differences. We have made this study in respect of NBA's Outcome-based Accreditation Framework and ISO 21001:2018 system. This study is based on literature survey, discussions with the domain experts, along with the assessment experience of the author as NBA accredited evaluator and involvement with institutes having ISO certification.

II. OUTCOME-BASED EDUCATION FRAMEWORK

Outcome-based education [3] is a process that focuses on what students need to learn and then demonstrate that they have learnt and acquired the necessary Knowledge, Skills, Attitude and Behavior. Outcome-based Education Framework (OBEF) refers to Curricula design, implementation, delivery and assessment mechanisms, which are designed to achieve these capabilities and qualities in students. OBEF is student-centric, wherein teaching/ learning of the student is the focus and all educational processes and practices are designed around that. OBEF is holistic, dynamic and futuristic. All stake-holders – Management, Administration, faculty, Students, Parents, Alumni, Employer and Society - contribute, in one way or the other, for the design of processes, practices and their implementation. OBEF requires that the following processes be adhered to and relevant stake-holders involved:

- Decide what you want the students to learn and demonstrate (extremely important)
- Design the curricula by involving the stake-holders
- Deliver and implement the curricula, emphasizing the various levels-of-learning
- Assess the learning-types by appropriate assessment techniques
- Ascertain continuous improvement of student abilities and learning outcomes.

Educational organization defines
- Vision and Mission
- Educational Objectives
- Student Learning Outcomes (SLO)
- Educational Curriculum
- Delivery and Implementation
- Assessment and Evaluation
- Continuous Improvement.

Educational objectives and SLO are the *'Intended'* features, which are decided *'a priori'* by the institute. OBEF mandates that learning outcomes must be clearly defined, understood, implemented and can be measured. Outcomes are realized by first defining intended attributes, referred to as Graduate Attributes (GA).

III. GRADUATE ATTRIBUTES AND ACCREDITATION

GAs refer to the "qualities, skills and understandings" an educational organization decides that its students will desirably develop during their time at the institution and, consequently, shape the contribution they are able to make to their profession and society as a citizen [4,5]. They are intended to define the scope and standards for educational programs and provide lead to define Student Learning Outcomes (SLO) and Educational Objectives. By defining and implementing the graduate attributes, the educational organization prepares the students as discipline-proficient, self-motivated professional, accomplished individual and concerned citizen.

Accreditation is a quality assurance process that colleges, universities and education institutions or programs undertake to confirm that they meet recognized set of service and operational standards. National Board of Accreditation (NBA), New Delhi, [6] has adopted the OBEF for accrediting the professional programs – Engineering, Management, Pharmacy and Architecture. In fact, University Grants Commission [7] is also stressing the need of re-orienting the teaching/learning/assessment processes and practices according to outcome-based education pedagogy. NBA has implemented Outcome-based Accreditation by defining a framework, consisting of a number of accreditation criteria for Post-graduate and Undergraduate programmes. As for instance, the Criteria for undergraduate engineering programme are:

1. Vision, Mission and PEO
2. Program Curriculum & T/L Processes
3. Graduate Attributes [Program Outcomes & Course Outcomes]
4. Student Performance
5. Faculty Information and Contributions
6. Facilities and technical Support
7. Continuous Improvement
8. First Year Academics
9. Student Support System
10. Governance, Institutional Support and Financial.

These and other criteria (postgraduate) are quite detailed and all-inclusive, involve various stake-holders -- management, faculty, students, alumni, industry, etc. in various ways. They contribute to the design of curricula, implementation mechanisms, outcome's, assessment, feedback, and enabling environments for the success of students. It is obvious that faculty qualifications/competencies, student learning outcomes, institute support facilities are very significant in the NBA accreditation framework.

IV. INTERNATIONAL EDUCATION STANDARD ISO 21001:2018

ISO 21001:2018 is the latest quality assurance standard, having been developed by an international organization [1]. All requirements of ISO 21001 are general and envisaged to be applicable to educational organizations that provide, share and facilitate the construction and generation of knowledge through teaching, training or research. It has world-wide acceptability and is applicable across educational organizations. This standard helps to prepare the Management System for the educational organization for the various activities, practices and doings of the education process. Basic principles of this standard are [1]:

(A) Focus on learners and other Beneficiaries (stake-holders)
(B) Visionary leadership
(C) Engagement of people
(D) Process approach
(E) Continual improvement
(F) Evidence-based decisions
(G) Relationship management
(H) Social responsibility
(I) Accessibility and equity
(J) Ethical conduct
(K) Data security and protection.

Focus on Learners and Other Beneficiaries: Focus is to satisfy requirements of all stake-holders and to exceed their expectations. Educational organizations need actively engage learners in their self-learning, with consideration of the community requirements, organization vision, mission objectives and outcomes. This involves making realistic and dynamic policies, addressing needs of stake-holders and developing processes/practices, which allow to plan, design, develop, produce, deliver and support educational activities and services to the learners and other stake-holders.

Visionary Leadership: Visionary leadership is to involve all learners and other relevant stake-holders in creating, writing, and implementing the organization mission, vision and objectives and provide people with the required resources, facilities and empowerment with accountability.

Engagement of People: Educational organization hires/employs people, who are qualified, competent, motivated and engaged in creating knowledge and delivering value. They promote culture of quality, collaboration, sharing of knowledge and self-assessment.

Process Approach: Various processes and activities are defined, understood and managed to achieve consistent and predictable results effectively and efficiently to achieve organization's quality and performance objectives. These processes are monitored to ensure that the necessary data is available to operate and improve the processes, analyze and evaluate the performance of the overall system.

Improvement: The educational organization has constant emphasis on improving its objectives; educating and training people at all levels on how to apply basic tools and methodologies to

achieve better-quality objectives. There is on-going review and audit of the planning, implementation, completion and results of improvement projects. Improvement considerations are made part of the ethos of the organization.

Evidence-Based Decisions: Performance, decisions and actions are based on evidence, analysis and evaluation of data about key-indicators, which are pre-defined and well disseminated. It is ensured that data and learning resources are sufficiently accurate, reliable and secure and that people are competent to analyze and evaluate data using suitable methods.

Relationship Management: Educational organizations manage their relationships with interested parties and stake-holders for sustained success by defining and evolving appropriate protocols that balance short-term gains with long-term considerations. They measure performance and provide performance feedback to interested parties, as appropriate, to enhance improvement initiatives.

Social Responsibility: Educational organization commits itself to societal cause, as socially responsible organizations are sustainable and ensure long-term success by raising awareness and building competence for social responsibility. They do so by adopting written codes of conduct or ethics that specify the organization's commitment to social responsibility and incorporating this into organizational functions and processes.

Accessibility and Equity: Successful organizations are inclusive, flexible, transparent and accountable. They address learners' individual needs, interests and abilities. They provide, cultural, psychological, educational and other support to learners. They collect data on access, participation and completion of learners and use this for decision-making.

Ethical Conduct In Education: Educational organizations create ethical and professional environment, where all concerned parties are dealt with equitably and conflicts of interest are avoided. They have ethical conduct policy and follow ethical

guidelines for research and implement appropriate structures to do so.

Data Security and Protection: Educational organizations maintain appropriate documentation and database of students and relevant stake-holders and treat this data with appropriate care and confidentiality. Data security policy and rules regarding confidentiality, integrity and availability of data are defined and known to students, staff and interested stake-holders.

Thus, ISO 21001:2018 standard promotes an integrated, secure, all-inclusive, and systematic approach to education. It covers all levels of development from planning, management, implementation and improvement to the daily teaching/ learning activities and doings. Due emphasis is given to societal responsibilities as well and institute data security.

V. NBA OUTCOME-BASED ACCREDITATION FRAMEWORK VS. ISO 21001:2018 FRAMEWORK

We have analyzed the specifics of ISO 21001 principles (Section 3, and Reference 1) and features of NBA Criteria for Tier-I institutions, element by element [6, 8]. Based on this, we have performed mapping and association among NBA criteria and ISO principles, and presented in Table 1 [9]. Correlations have been divided into three levels, following the NBA notation, as H (3), M (2), L (1), x (0)(High, Medium, Low, Nil). Here it is assumed that mapping of NBA criteria -4- and -8- to ISO principles are similar as these both concern students.

It is observed that the two frameworks map to the extent of 65~70% (nearly) and can be improved further by incorporating data security and harmonizing some other aspects concerning accessibility and equity and transparent relationship management. NBA framework puts lot of emphasis on quantitative measurements, which can also be embedded into ISO framework. This harmonization will offer an advantage of the systems being analogous. Educational organizations, which have acquired outcome-based accreditation, can easily migrate to the global standard, thereby acquiring world-wide visibility, gaining many more advantages.

TABLE 1 -- CORRELATIONS AMONG ISO 21001 PRINCIPLES AND NBA CRITERIA

S. No.	NBA Criteria (Weightage)	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)+
1.	Vision, Mission and PEO (50)	H	H	M	M	L	L	L	L	M	x	x
2.	Program Curriculum & T/L Processes (100)	H	M	M	H	H	M	L	L	x	x	x
3.	Graduate Attributes* (175)	H	M	L	M	L	L	L	M	M	M	x
4.	Student Performance (100)	H	M	M	H	H	H	M	M	M	M	x
5.	Faculty Information and Contributions (200)	H	M	H	H	M	M	M	M	M	x	x
6.	Facilities and technical Support (80)	M	M	L	M	M	L	M	L	L	x	x
7.	Continuous Improvement (75)	H	M	M	M	H	L	M	x	x	L	x
8.	First Year Academics # (50)	H	M	M	H	H	H	M	M	M	M	x
9.	Student Support System (50)	H	M	L	M	M	M	L	M	L	L	x
10.	Governance, Institutional Support and Financial (120)	H	H	H	H	M	M	M	M	M	M	x

(*) Program Outcomes and Course Outcomes
(#) Not included explicitly in ISO 21001:2018
(+) Not included in NBA framework

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Dr. P. S. Grover has been Professor, Dean and Head of Computer Science Department and Director of Computing Centre, at University of Delhi, Delhi. His areas of research interest are: Software Engineering, Big Data and Academic Analytics, SW Quality and Metrics, Outcome-based Education and Continuous Quality Improvement in Higher Education Institutions. He specializes in Outcome-based Accreditation Processes and Practices and is member of NBA/NAAC/DEC assessment panels. He has been Vice President, Computer Society of India and Chairman – Indian Science Congress (Computer Science and IT). He is life senior member of Computer Society of India, Fellow-Institute of Electronics and Electrical Engineers, Member-Indian Society of Technical Education, Quality Council of India and IEEE, USA. Presently, he is Campus Director, KIIT Group of Colleges, Maharishi Dayanand University (MDU), Gurgaon.