

## PLENARY TALK 1

### GRADUATE ENGINEERS' ATTRIBUTES FOR SUSTAINABLE DEVELOPMENT: PATHWAY SET BY THE ACCREDITATION BOARD

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## ABSTRACT

Bangladesh is one of the booming economies of Asia, steadily driving with a strong growth in GDP. The country is on track to be removed from the UN's list of least developed countries in 2026. By maintaining a steady growth rate, Vision 2041 of Bangladesh strives to eradicate extreme poverty and gain upper-middle-income country status by 2030 and high-income country status by 2041. This transition requires a large number of engineers to meet emerging development needs. The country's need for engineering professionals is overwhelmingly met by local engineers. Also, engineers from Bangladesh are employed in the U.S., Europe, Australia, England and in the Middle East. The need for engineers is a driving factor in the recent expansion of engineering programs at the tertiary level.

The Board of Accreditation for Engineering and Technical Education (BAETE), an independent organization under the Institution of Engineers, Bangladesh is currently benchmarking engineering programs within the geographical area of Bangladesh, per the graduate attributes set by the International Engineering Alliance (IEA). The IEA is further working with the signatory countries to set a pathway to incorporate the UN SDG goals within a set of realigned graduate attributes. Realizing the desired professional competencies is important to reach the goal. The new changes encourage institutions of higher education to realign their programs with national and global goals.

Our discussion is focused on how engineering programs should make this transition and how it is likely to change certain aspects of the curriculum, teaching, learning and assessment.



**Saiful Amin** has been with BAETE since its first few visits conducted in input-based accreditation system about two decades ago. He is a leading proponent and promoter of engineering education and the development of sustainable infrastructure in Bangladesh. Prof. Saiful Amin worked for BAETE in inking the first OBE Manual in 2016 and implemented it in 2017 across the country. The manual went through subsequent revisions with his close supervision in subsequent years. He was the member secretary of BAETE 2016–2020 when it pursued major capacity building for OBE. Prof. Amin is now the first vice chairman and acting chairman of BAETE. He was responsible for guiding BAETE through the challenges of the COVID-19 era, introducing digitization and hybrid modes of communication in the processes of the board at the very onset of COVID-19, which eased day-to-day activities and maintained nationwide operations and international activities for capacity building.

Born and raised in Bangladesh in a research, education and engineering-centered middle-class family, he was awarded with a Government of Japan fellowship and several German fellowships/grants for his doctoral and post-doctoral studies, respectively. As an experienced civil engineer and leading engineering researcher, he has been teaching and researching as well as designing, constructing, repairing, and maintaining major installations for over 25 years as an advisor and consultant in Bangladesh. Apart from his professorship in Department of Civil Engineering of BUET, currently, he holds the Director position at the Institute for Disaster Prevention and Urban Safety of BUET, focused on research of disaster management and disaster risk reduction to create a more skilled workforce. He is the chair of the Bangladesh Group of International Association for Bridge and Structural Engineering (IABSE) and also the founding member of the IABSE Academy responsible for e-learning initiatives in bridge and structural engineering. He is the Institution of Civil Engineers United Kingdom representative in Bangladesh.

Prof. Saiful Amin was honored with a gold medal from Prime Minister Sheikh Hasina in 1996 and is an F. R. Khan scholar, recipient of several merit scholarships in Bangladesh and several distinctions from Europe, Asia and the Far East.

Prof. Amin is a fellow of The Institution of Engineers, Bangladesh; Institution of Civil Engineers, United Kingdom and International Association for Bridge and Structural Engineering.



**Kazi Bayzid Kabir** is a Professor of Chemical Engineering at Bangladesh University of Engineering and Technology (BUET). Dr. Kabir completed his PhD from Monash University in 2014. Before that, he completed his MSc in Chemical Engineering in 2009 and BSc in Chemical Engineering in 2004 from BUET.

Dr. Kabir has been involved in energy research with emphasis on solid fuel conversion (pyrolysis and gasification), syngas conversion to liquid and gaseous fuels via heterogeneous catalysis, waste-to-energy through hydrothermal treatment, and life-cycle assessment and techno-economic assessment of energy conversion processes. Apart from teaching and research, Dr. Kabir also has keen interest in academic quality assurance. He is currently the Additional Director of BUET's Institutional Quality Assurance Cell and works closely with the Strategic Planning and Quality Assurance Division of UGC. Dr. Kabir is also the Member Secretary of the Board of Accreditation for Engineering and Technical Education since March 2021.

Prof. Kabir is a Life Member of The Institution of Engineers, Bangladesh, as well as Senior Member of the American Institute of Chemical Engineers and Associate Member of the Institution of Chemical Engineers.