

# Accreditation process for Bachelor of Science (BSc) Engineering Programme



## The Gambia University of Applied Science, Engineering and Technology (USET)

This document describes the process used and stakeholders involved in developing the BSc curriculum. The stages of curriculum development are categorized into six as follows: (1) needs assessment, (2) the formulation of objectives and outcomes, (3) development of the programme structure, (4) development and organization of content, (5) consultations and revisions based on stakeholder input, and (6) final curriculum.

### *Needs Assessment*

Through the National Development Plan (2018-2021), The Gambia government intends to continue to invest in its citizens, as it seeks to transition to a more prosperous society and a competitive economy. In its drive to provide quality and relevant tertiary and higher education in The Gambia, the Ministry of Higher Education, Research, Science and Technology has embarked on a reform programme that is transforming the post-secondary education system, more so, the public tertiary and higher education institutions. To this end, a policy target of 65 percent has been allotted to STEM-related training and development. It is envisaged that graduates in STEM and related science areas will be responsive to the development needs of the country and the sub-region. The Gambia is harnessing the gains of the ACE I project, and the opportunities accorded by the World Bank in the ACE Impact to establish an Emerging Centre of Excellence on Science, Technology and Engineering for Entrepreneurship at the Gambia Technical Training Institute (GTTI). This Emerging Centre delivers degree programmes and serve as the first phase of the GTTI transformation into the University of Science and Technology (USET). The approval for the establishment of the USET was obtained in December 2020 through the provisions of Tertiary and Higher Education Act, 2016. Access to tertiary and higher education in the Gambia has been a challenge due to the limited number of technical institutions. For instance, access to programmes beyond level 4 International Standard Classification of Education (ISCED) is limited. Higher education institutions (Universities), constitute only 5.5%; tertiary institutions represent 7.3% and post-secondary non-tertiary education constitutes 87.2% (MoHERST Database 2020). It is obvious therefore that the capacity to absorb transiting and out of school students is limited and needs urgent redress. The Bachelor of Science in Mechanical Engineering responds to the need for Science, Technology, Engineering and Mathematics (STEM) education at the post-secondary level.

### *Formulation of Objectives and Outcomes*

The mission of the University as directed by the Ministry of Higher Education and the requirement of The World Bank drives the Objectives and the Outcomes of the Curriculum. The Government of the Gambia desires the University to develop human resources in Science, Technology, Engineering and Mathematics (STEM) with entrepreneurial skills. The donor agency (The World Bank) desires to have a curriculum that can be bench-marked against other international programmes via an international accreditation agency. The programme educational objectives (Section 7.1) and the Student Learning Outcomes (Section 7.2) were developed and shared with the ACE Programme Steering Committee as well as the industry stakeholders. Mapping of the two desired outcomes is presented in Section 7.3 below.

### ***Development the Programme Structure***

The standard used is based on the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). ABET has set the standard for programmes in applied and natural sciences, computing, engineering and engineering technology. ABET provides specialized accreditation for post-secondary programs within degree-granting institutions already recognized by national or regional institutional accreditation agencies or national education authorities worldwide. To date ABET has accredited programmes in over 40 countries in all regions of the world. The programme structure based on ABET standards is presented in Section 9 below.

### ***Development and Organization of Content***

The organization and content were driven by three sources. These are: (1) The United States National Council of Examiner for Engineering and Surveying (NCEES), (2) Similar Programmes in the United States (*Michigan State University and North Carolina State University*), and in Ghana (*Kwame Nkrumah University of Science and Technology*), and Nigeria (*Ahmadu Bello University*), and (3) Specialization based on local needs.

### ***Consultations and Revisions***

The programme was distributed to stakeholders in The Gambia and to Kwame Nkrumah University of Science and Technology, our ACE Mentoring Institution. A draft of the content of the curriculum was shared with Professor George Obeng, the Dean of Faculty of Mechanical and Chemical Engineering ([geo\\_yaw@yahoo.com](mailto:geo_yaw@yahoo.com)) and Professor Yaw Andoh, Head of Mechanical Engineering ([pyandoh.coe@knust.edu.gh](mailto:pyandoh.coe@knust.edu.gh)) for review and feedback. A roundtable discussion was also held with Mechanical Engineering lecturers who were visiting USET during their assignments in The Gambia. Their input and recommendations were considered in the development of the document. Additionally, a second-tier of roundtable discussion was held at the local level through MoHERST on October 27, 2022. Representatives of the following were in attendance: Ministry of Higher Education, Research, Science and Technology (MoHERST), Ministry of Basic and Secondary Education (MoBSE), FENTA Consultants, National Water and Electricity company (NAWEC), Gambia Ports Authority (GPA), University of Applied Science, Engineering and Technology (USET), and National Accreditation & Quality Assurance Authority (NAQAA). The attendees were provided with the draft document. The recommendations arising out of the discussions were considered in the development of the draft of the final curriculum which was discussed with the Management Team of USET on November 1, 2022.

### ***Submission of Final Curriculum***

The final curriculum prepared in accordance with the requirements of NAQAA and ABET, was submitted to National Accreditation & Quality Assurance Authority NAQAA.

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