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FINAL REPORT

KWAME NKURUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY (GHANA)

CLUSTER ACETRECK

TRANSPORT SYSTEMS (MASTER OF SCIENCE/ MASTER OF PHILOSOPHY)

TRANSPORT LEADERSHIP (MASTER OF SCIENCE)

TRANSPORT SYSTEMS (PHD)

August 2024



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DECISION OF THE AQAS STANDING COMMISSION

ON THE STUDY PROGRAMMES

“TRANSPORT SYSTEMS” (MASTER OF SCIENCE/ MASTER OF PHILOSOPHY)

“TRANSPORT LEADERSHIP” (MASTER OF SCIENCE)

“TRANSPORT SYSTEMS” (PHD)

OFFERED BY KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY (GHANA)

Based on the report of the expert panel, the comments by the university and the discussions of the AQAS Standing Commission in its 22nd meeting on 26 August 2024, the AQAS Standing Commission decides:

1. The study programmes “Transport Systems” (M.Sc./MPhil), “Transport Leadership” (M.Sc.), and “Transport Systems” (PhD) offered by Kwame Nkrumah University of Science and Technology (Ghana) are accredited according to the AQAS Criteria for Programme Accreditation (Bachelor/Master) and the AQAS Criteria for Doctoral Programme Accreditation (PhD).

The accreditations are conditional.

The study programmes essentially comply with the requirements defined by the criteria and thus the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) and the European Qualifications Framework (EQF) in their current version. The required adjustments can be implemented within a time period of twelve months.

2. The conditions have to be fulfilled. The fulfilment of the conditions has to be documented and reported to AQAS no later than **30 September 2025**. The confirmation of the conditions might include a physical site visit within the time period of twelve months.
3. The accreditation is given for the period of **six years** and is valid until **30 September 2030**.

Conditions:

All programmes

1. The ACETRECK has to reflect on providing the bigger picture for the relevance to the transport sector in Africa, ensuring that the result is clearly reflected in the individual programme intended learning outcomes, by:
 - a. Integrating conceptually intermodal transport solutions for Africa into the Centre’s programme rationales, and
 - b. Addressing societal mobility patterns to enhance the transport sector in Africa.
2. It is mandatory to clearly delineate the specific duties and responsibilities of the QA board in respect of ACETRECK to ensure robust coordination and a cohesive approach to maintaining and enhancing educational quality.

3. A detailed list of all available resources must be provided to ensure optimal understanding and utilisation by students and staff, especially in light of the upcoming move to a new building.
4. The student handbook must be regularly updated to include current programme titles, course overviews, detailed course descriptions, and the weekly module approach, and there must be a more accurate and consistent dissemination strategy that caters to an international audience.
5. It is mandatory to publish all relevant regulations and policies in an updated version on the homepage and outline the rationale for individual programmes, clearly linking this information to both the main and ACE-TRECK homepages for enhanced transparency and accessibility.

Master's programme "Transport Systems" (M.Sc./MPhil)

6. Clarification of the intended learning outcomes on the programme level between the MSc and MPhil programme "Transport Systems" is necessary to distinguish the MSc's focus on practical skills for the transport industry and the MPhil's emphasis on research.
7. It is necessary to make the "Transport and Society" course mandatory and extend it to provide a comprehensive understanding of social aspects in transport systems within the Master's programme "Transport Systems".
8. It is mandatory to establish clearer transition requirements from M.Sc. "Transport systems" to the PhD programme "Transport Systems".

Master's programme "Transport Leadership" (M.Sc.)

9. There is a need to incorporate ethical considerations and sustainability into the programme's intended learning outcomes for the Master's programme "Transport Leadership".

The following **recommendations** are given for further improvement of the programmes:

All programmes

1. ACETRECK should consider to add a part-time option to its programmes to increase accessibility and inclusivity for students.
2. It is suggested to increase the frequency and depth of interactions with industry stakeholders.
3. It is recommended to reconsider the suitability of the modular (Block) approach for complex subjects and explore more flexible and extended teaching methods to better support student learning and well-being.
4. It is suggested to reconsider the current re-sit regulations for ACETRECK to allow for more flexible remediation options.
5. It is recommended to involve external examiners at earlier stages, particularly in the approval of examination questions.
6. The experts suggest strengthening the strategy to attract more female students by implementing targeted outreach and support initiatives.
7. It is recommended to address the lack of established procedures for recognizing competencies achieved at partner institutions to fully capitalize on partnerships.
8. It is suggested to clarify the procedure and criteria for scholarship allocation.
9. It is recommended to continuously improve the e-learning platform by incorporating feedback, expanding online resources, and integrating advanced features to provide a more engaging and effective learning experience.
10. It is important to encourage the activation of an ACETRECK Alumni platform to provide a valuable network for mentorship, professional connections, and knowledge sharing.
11. It is recommended to showcase alumni success stories on the website and social media to serve as role models for prospective and current students.

Master's programme "Transport Systems" (M.Sc./MPhil)

12. It is suggested to refine the titles of the specialisations for the Master's programme "Transport Systems" to "Infrastructure Engineering" and "Urban Transport Operations" for greater clarity and consistency.
13. It is highly recommended to introduce a course on freight logistics and supply chain management to address logistical challenges and foster economic growth in the Master's programme "Transport Systems".

Master's programme "Transport Leadership" (M.Sc.)

14. It is recommended to enhance the curriculum for the Master's programme "Transport Leadership" by developing a clearer roadmap that demonstrates the progression from foundational knowledge to advanced leadership skills, ensuring courses interrelate effectively to build comprehensive leadership competencies.
15. It is recommended to integrate case studies and practical examples from across the African continent into the curriculum for the Master's programme "Transport Leadership".
16. It is suggested to refine the assessment strategy for the Master's programme "Transport Leadership" by incorporating leadership-specific projects, peer evaluations, and reflective essays to better measure leadership qualities.

PhD programme "Transport Systems" (PhD)

17. It is suggested to incorporate more interdisciplinary and cross-sectoral projects, such as those involving "Transport & Society," early in the PhD programme.
18. It is recommended to increase PhD students' involvement in teaching to provide them with valuable teaching experience.

With regard to the reasons for these decisions the Standing Commission refers to the attached experts' report.

EXPERTS' REPORT**ON THE STUDY PROGRAMMES****“TRANSPORT SYSTEMS” (MASTER OF SCIENCE/ MASTER OF PHILOSOPHY)****“TRANSPORT LEADERSHIP” (MASTER OF SCIENCE)****“TRANSPORT SYSTEMS” (PHD)****OFFERED BY KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
(GHANA)**

Visit to the university: 13 – 16 May 2024

Panel of experts:

Prof. Dr. Washington Yotto Ochieng, CBE, EBS, FREng Imperial's College London (United Kingdom), Faculty of Engineering, Department of Civil and Environmental Engineering,

Prof. Dr. Alex Apegyei University of East London (United Kingdom), School of Architecture, Computing and Engineering

Charlène Kouassi Movin On Lab (France/Cote d'Ivoire) (representative of the labour market)

Maike Grüneberg PhD Student at Technical University Darmstadt (Germany) (student expert)

Coordinator:

Patrick Heinzer

AQAS, Cologne, Germany

I. Preamble

AQAS – Agency for Quality Assurance through Accreditation of Study Programmes – is an independent non-profit organisation supported by more than 90 universities, universities of applied sciences, and academic associations. Since 2002, the agency has been recognised by the German Accreditation Council (GAC). It is, therefore, a notified body for the accreditation of higher education institutions and programmes in Germany.

AQAS is a full member of ENQA and also listed in the European Quality Assurance Register for Higher Education (EQAR) which confirms that our procedures comply with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), on which all Bologna countries agreed as a basis for internal and external quality assurance.

AQAS is an institution founded by and working for higher education institutions and academic associations. The agency is devoted to quality assurance and quality development of academic studies and higher education institutions' teaching. In line with AQAS' mission statement, the official bodies in Germany and Europe (GAC and EQAR) approved that the activities of AQAS in accreditation are neither limited to specific academic disciplines or degrees nor a particular type of higher education institution.

II. Accreditation procedure

This report results from the external review of the Master's and PhD programmes "Transport Systems" (M.Sc./MPhil), "Transport Leadership" (M.Sc.), and "Transport Systems" (PhD) offered by Kwame Nkrumah University of Science and Technology (Ghana).

1. Criteria

Each programme is assessed against a set of criteria for accreditation developed by AQAS: the AQAS Criteria for Programme Accreditation (Bachelor/Master) and the AQAS Criteria for Doctoral Programme Accreditation (PhD), respectively. The criteria are based on the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) 2015. To facilitate the review each criterion features a set of indicators that can be used to demonstrate the fulfilment of the criteria. However, if single indicators are not fulfilled this does not automatically mean that a criterion is not met. The indicators need to be discussed in the context of each programme since not all indicators can necessarily be applied to every programme.

2. Approach and methodology

Initialisation

The university mandated AQAS to perform the accreditation procedure in June 2023. The university produced a Self-Evaluation Report (SER). In July 2023, the institution submitted a draft of the SER together with the relevant documentation on the programmes and an appendix and statistical data on the programmes. The appendix included e.g.:

- an overview of statistical data of the student body (e.g. number of applications, beginners, students, graduates, student dropouts),
- the CVs of the teaching staff/supervisors,
- information on student services,
- core information on the main library,
- as well as academic regulations.

AQAS checked the SER regarding completeness, comprehensibility, and transparency. The accreditation procedure was officially initialised by a decision of the AQAS Standing Commission on 4 December 2023. The final version of the SER was submitted in March 2024.

Nomination of the expert panel

The composition of the panel of experts follows the stakeholder principle. Consequently, representatives from the respective disciplines, the labour market, and students are involved. Furthermore, AQAS follows the principles for selection of experts defined by the European Consortium for Accreditation (ECA). The Standing Commission nominated the aforementioned expert panel in March 2024. AQAS informed the university about the members of the expert panel. The university did not raise any concerns about the composition of the panel.

Preparation for the site visit

Prior to the site visit, the experts reviewed the SER and submitted a short preliminary statement including open questions and potential needs for additional information. AQAS forwarded these preliminary statements to the university and to all panel members in order to increase transparency in the process and the upcoming discussions during the site visit.

Site visit

After reviewing the SER, the panel visited the university from 13 – 16 May 2024. On site, the experts interviewed different stakeholders, e.g. representatives of the management of the higher education institution, the programme management, of teaching and of other staff, as well as students and graduates, in separate discussion rounds and consulted additional documentation as well as student work. The visit concluded with the presentation of the preliminary findings of the group of experts to the university's representatives.

Reporting

After the site visit had taken place, the expert group drafted the following report, assessing the fulfilment of the AQAS Criteria. The report included a recommendation to the AQAS Standing Commission. The report was sent to the university for comments.

Decision

The report, together with the comments of the university, forms the basis for the AQAS Standing Commission to take a decision regarding the accreditation of the programmes. Based on these two documents, the AQAS Standing Commission took its decision on the accreditation on 26 August 2024. AQAS forwarded the decision to the university. The university had the right to appeal against the decision or any of the imposed conditions.

In October 2024, AQAS published the report, the result of the accreditation as well as the names of the panel members.

III. General information on the university

The Kwame Nkrumah University of Science and Technology (KNUST) was established in 1951 as the Kumasi College of Technology. Ten years later, KNUST became a full-fledged university, assuming its current name. KNUST strives to provide an environment for research, entrepreneurship and teaching in science and technology for the industrial and socio-economic development of the country, the region and beyond.

As of 2023, the university had 4,484 members (1,117 academic and 3,367 non-academic staff). At the same time, KNUST had 83,164 students (74,468 undergraduate and 8,696 graduate students). The Civil Engineering Department has according to the SER, a total enrolment of 1,290 students (1187 undergraduate students and 79 postgraduate students).

KNUST's organisational structure is headed by the Chancellor, supported by the Vice-Chancellor. The university has six colleges (College of Agriculture and Natural Resources, College of Art and Built environment, College of Humanities and Social Sciences, College of Engineering, College of Health Sciences, and the College of Science). These colleges are subdivided into faculties, schools, and departments. Some of them have research centres. According to the SER, the programmes seeking accreditation are administered by the African Centre of Excellence Regional Transport Research and Education Centre Kumasi (ACETRECK), which operates under the umbrella of the Civil Engineering Department.

As stated, TRECK is an expansion of KNUST's Road and Transport Engineering Programme and was launched in 2018 as an interdisciplinary Research Centre. Supported by the Ministry of Roads and Highways, Ghana, and the World Bank, TRECK collaborates with various university departments and maintains strategic partnerships nationally, regionally, and internationally. Situated within the Civil Engineering Department, TRECK actively engages with local industries, serving as a key player in the field. The department is well-represented on national and international committees, contributing to its influence on the civil engineering profession. It also collaborates with institutions in countries like the Netherlands and the UK. Offering undergraduate and postgraduate programmes, the department covers areas such as water resource engineering, environmental quality engineering, geotechnical engineering, highway and transport engineering, and structural engineering at Master's and doctoral levels.

It is stated that the postgraduate programmes, in accordance with the University's vision and strategic objectives, aim to equip students with the necessary skills for successful careers in various transport industry sectors. According to the SER, these programmes adopt a multidisciplinary and research-focused approach to transport planning, leadership, and engineering training. This approach leverages advanced knowledge and skills across relevant disciplines, enabling students to apply a systems approach in planning, analysing, and developing transport infrastructure and operations for all modes of transport. The alignment with the University's overarching goal of creating an environment for teaching, research, and entrepreneurship training in science and technology is emphasized in the documentation submitted for accreditation.

IV. Assessment of the study programmes

1. Quality of the curriculum / Aims and structure of the doctoral programme

Bachelor's/Master's degree

The intended learning outcomes of the programme are defined and available in published form. They reflect both academic and labour-market requirements and are up-to-date in relation to the relevant field. The design of the programme supports achievement of the intended learning outcomes.

The academic level of graduates corresponds to the requirements of the appropriate level of the European Qualifications Framework.

The curriculum's design is readily available and transparently formulated.

[ESG 1.2]

Doctoral degree

The intended learning outcomes of the programme are defined and available in published form. They reflect both academic and labour-market requirements and are up-to-date in relation to the relevant field. The design of the programme supports the achievement of the intended learning outcomes.

The academic level of graduates meets the requirements of the appropriate level of the national qualifications framework or the European Qualifications Framework.

The curriculum's design is readily available and transparently formulated.

[ESG 1.2]

1.1 Common elements of the programmes

Description

According to the self-evaluation report submitted, the postgraduate programmes under consideration for accreditation are designed to address critical global and regional challenges related to transport, aligning with three of the United Nations Sustainable Development Goals (SDGs) — SDG 3 (Good Health and Well-being), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 11 (Sustainable Cities and Communities).

It is said that transport is essential for achieving SDG 3, which aims to ensure healthy lives and promote well-being for all. Efficient and reliable transport systems enable communities to access medical facilities, emergency services, and health professionals, thereby contributing significantly to overall public health. In relation to SDG 9, transport infrastructure is integral to building resilient infrastructure, promoting sustainable industrialization, and fostering innovation. Efficient transport systems facilitate the movement of goods and people, support economic activities, and enhance connectivity. SDG 11 focuses on making cities and human settlements inclusive, safe, resilient, and sustainable. Improved transport systems reduce congestion and air pollution, enhance mobility and accessibility, and support sustainable urban development.

Following the documentation, these postgraduate programmes are designed to equip students with the skills required for successful careers in the transport industry. They adopt a multidisciplinary approach that integrates transport planning, leadership, and engineering training, leveraging advanced knowledge and skills in relevant disciplines. This enables students to apply a systems approach in the planning, analysis, and development of transport infrastructure and operations across all modes of transport. By focusing on both theoretical and practical aspects, the programmes ensure that graduates are well-prepared to address complex transport challenges and contribute to the advancement of the industry.

Aligned with the University's vision and strategic objectives, these programmes foster an environment conducive to teaching, research, and entrepreneurship in science and technology. They support the industrial and socio-economic development of Ghana, Africa, and the world at large. The programmes contribute to the University's mission by producing graduates who are knowledgeable and capable of driving innovation and development in their respective fields.

The programmes are coordinated by the Regional Transport Research and Education Centre Kumasi (TRECK), part of the Civil Engineering Department. TRECK, an interdisciplinary research centre launched in 2018, collaborates with national and international partners to ensure the programmes remain relevant and of high quality. An admissions committee rigorously evaluates applicants, and a departmental board supervises programme excellence. Postgraduate coordinators serve as points of contact, and an examinations audit team ensures consistency in examination results. This comprehensive coordination structure guarantees the programmes' quality and effectiveness.

TRECK builds on the legacy of the Road and Transport Engineering Programme (RTEP) established in 2004 with support from the Ministry of Roads and Highways, Ghana, and the World Bank. The Civil Engineering Department, under which TRECK operates, collaborates closely with local industry and international institutions, with the aim to ensure that the programmes are attuned to industry demands and global standards.

Experts' evaluation

The panel of experts have seen three programmes that are very relevant for the African continent, because ACETRECK focuses on an approach formulated to shape the future of transport in Ghana, West Africa, and the whole continent. Given this as a baseline, the experts strongly suggest reflecting on providing the bigger picture for the relevance to the transport sector in Africa. The respective adaptation and consequences must be clearly visible in the centre's vision and carefully crafted into the individual programmes' intended learning outcomes on the programme level to create a clear unique selling point for the programmes and the centre (**Finding 1**). This reflection should ideally outline the challenges and architecture of transportation in Africa, and how the programmes address those issues with clear references to current national, regional and continental developments. It must include, furthermore, inter-modality aspects of transport (**Finding 1a**), and aspects on mobility and society (**Finding 1b**).

The inter-modality of transport, defined as the integration of various transportation modes such as road, rail, air, sea and active, holds significant importance for Africa. Inter-modality is pivotal for economic development, primarily through enhanced connectivity and market access. The experts state that by integrating different transport modes, regions within Africa can achieve more efficient connections both intra-continently and globally, which will have positive consequences on trade facilitation, environmental sustainability, and the socio-economic integration in the region and beyond.

The experts believe that aspects of mobility and society are crucial to the programmes due to their significant impact on the continent's development and sustainability. As discussed on site, rapid urbanisation and population growth in Africa demand innovative and sustainable transport solutions. Addressing urban mobility patterns and integrating various transport modes are essential to manage the challenges of expanding cities and ensure efficient, inclusive transport networks. Sustainable practices, such as promoting public and non-motorised transport and adopting green technologies, are crucial for reducing carbon footprints and mitigating environmental degradation, especially given Africa's vulnerability to climate change. Furthermore, cultural attitudes and commuting habits influence transport system design. Considering these factors ensures socially acceptable and widely adopted solutions; it is expected that the centre reflects on tailored measures to the diverse cultural contexts across Africa, while also taking into account the specific mobility needs of women and vulnerable groups. The experts outline that strengthening the focus on societal aspects of mobility and providing insights on regulation will aid the formulation of coherent policies that address Africa's complex transport realities.

After this reflection, the experts point out that a clear matching with the curricula and those aspects via, e.g. a matrix, will be necessary (see Findings below in the programme specific part). The experts discussed with the ACETRECK leadership that mapping these points with a matrix enhances clarity, alignment, interdisciplinarity, and strategic planning in the study programmes. It provides an organised way to present complex information, making relationships between programme elements clear. This ensures alignment with the centre's overarching goals by showing how each component contributes to intended learning outcomes. It also promotes an interdisciplinary approach, highlighting the interconnectedness of various topics, essential for addressing multifaceted transport challenges. Finally, the matrix aids strategic planning by visually representing how elements fit together, informing decisions on future developments and ensuring structured and effective programme evolution.

The experts consider it beneficial for the programmes incorporating internationally recognised standards to align with global best practices (for example the Washington Accord). This could enhance graduates' competencies and make their qualifications more appealing to global employers. Such alignment is beneficial in an increasingly globalised job market, improving graduates' competitiveness and potential for international professional recognition. This approach can also facilitate mobility and career opportunities across borders, allowing engineers to work on diverse projects worldwide.

The experts observed that in today's dynamic world, many potential students juggle multiple responsibilities, including jobs, family, and other personal obligations. A part-time option would enable them to pursue higher education without having to compromise their other commitments. This flexibility aligns with contemporary educational practices that recognise the diverse needs of learners and the importance of lifelong learning. Education is no longer confined to the early stages of life but is increasingly seen as a continuous process. Therefore, adding a part-time option could be important because it provides flexibility for students who may be working professionals or have other commitments that prevent them from enrolling in a full-time programme. This flexibility can increase the accessibility and inclusivity of the programmes, allowing a broader range of students to benefit from the education offered. It also aligns with contemporary educational practices that recognise the diverse needs of learners and the importance of lifelong learning. By offering a part-time option, ACETRECK could attract a more diverse student body, including mid-career professionals looking to upgrade their skills, thus enhancing the overall impact and reach of the programmes (**Finding 2**).

1.2 Transport Systems (M.Sc./MPhil)

Description

Intended learning outcomes on the programme level

According to the SER, the Master's level degree programmes in Transport Systems aim to address the deficiencies in new transport knowledge areas not covered by the undergraduate curriculum in Civil Engineering. These areas include transport sustainability, road safety, transport modelling, intelligent transport systems, sustainable materials, and pedagogical tools crucial for the future success of the transport sector. As outlined in the documentation, the programmes also aim to provide students with a foundation in transport infrastructure design, drainage, optimization, operations research, statistical modelling, transport simulation, and asset management.

From the SER, the M.Sc. programme is designed to impart various skills and knowledge, including understanding the transport system and its evolution, principles underlying transport demand, land use, and policy, as well as the ability to critically analyse and interpret qualitative and quantitative data related to the transport system. The programme also focuses on providing knowledge in transport simulation and modelling, supply management, selection and design of transport infrastructure systems, logistics networks, spatial analysis, safety, sustainability, and group work skills. Additionally, the programme aims to develop the ability to research, analyse, and synthesize solutions for contemporary transport-related issues with a multi-disciplinary approach.

According to the SER, the MPhil programme places a stronger emphasis on research and original contributions to knowledge at the Master's level, specifically in the planning, analysis, and development of infrastructure and operations for all transport modes. The MPhil programme targets students interested in pursuing a PhD or a career in academia, research, or policy-making, as outlined in the documentation.

The programme offers two specializations: Infrastructure and Engineering, and Urban Transport and Operations. While the first strives to cater to students with undergraduate degrees in Civil Engineering, Geological Engineering, Geomatic Engineering, or any other engineering discipline related to transport, the second

specialization, is designed for students with undergraduate degrees in any engineering discipline related to transport, Planning, Geography, or any discipline associated with transport.

Structure of the curriculum

As stated in the self-evaluation report, the Master's programme "Transport Systems" (M.Sc.) is a taught programme consisting of ten mandatory courses and two elective courses, totalling twelve courses. It is designed to be completed in 18 months over three six-month semesters. The first semester provides foundational knowledge in methodological tools such as applied statistics, modelling, operations research, optimisation techniques, and GIS in transport. The second semester focuses on specialisations, while the third semester includes an industrial internship and a research project. Graduates are awarded a Master of Science in Transport Systems with a selected specialisation. It is stated that the MPhil Transport Systems programme includes a research component spanning one year, extending the total duration to two calendar years.

According to the SER, the curriculum is composed as follows:

Semester 1 - All Specialisations

Core Courses:

1. CETS 551: Applied Statistics and Modelling Tools (3 credits)
2. CETS 553: GIS for Transport (3 credits)
3. CETS 555: Optimisation and Simulation Techniques for Transport (3 credits)
4. CETS 557: Intelligent Transport Systems (3 credits)
5. CETS 559: Transport Economics and Finance (3 credits)
6. Elective Course (3 credits)

Elective Courses (One out of four choices):

1. CETS 561: Traffic Flow Modelling (3 credits)
2. CETS 563: Transport and Society (3 credits)
3. CETS 565: Transport Logistics Engineering and Management (3 credits)
4. CETS 567: Rural Transport Infrastructure and Services (3 credits)

Semester 2 - Infrastructure and Engineering Specialisation

Core Courses:

1. CETS 552: Research Methods and Scientific Communication (3 credits)
2. CETS 556: Transport Safety and Sustainability (3 credits)
3. CETS 576: Pavement Engineering and Materials (3 credits)
4. CETS 578: Transport Demand Modelling (3 credits)
5. CETS 570: Transport Infrastructure Design and Drainage (3 credits)
6. Elective Course (3 credits)

Semester 2 - Urban Transport and Operations Specialisation

Core Courses:

1. CETS 552: Research Methods and Scientific Communication (3 credits)
2. CETS 556: Transport Safety and Sustainability (3 credits)
3. CETS 582: Urban Mobility, Accessibility and Planning (3 credits)
4. CETS 584: Transport Project Management (3 credits)

5. CETS 586: Urban Public Transport Design and Operations (3 credits)
6. Elective Course (3 credits)

Elective Courses (One out of five choices):

1. CETS 560: Urban Public Transport Design and Operations (3 credits)
2. CETS 562: Transport Asset Management (3 credits)
3. CETS 564: Advanced Spatial Data Analysis for Transport (3 credits)
4. CETS 566: Transport Project Procurement and Law (3 credits)
5. CETS 568: Data Science for Transport (3 credits)

Semester 3 - All Specialisations

Core Courses:

1. CETS 651: Thesis/Project Work (6 credits)
2. CETS 653: Industrial Internship (0 credits)

Total: 6 credits

Research Component

1. CETS 651: Thesis (12 credits)
2. Graduate Seminar

Practical Training

1. CETS 653: Industrial Internship (0 credits)

Graduation profile

ACETRECK aims to produce MPhil/MSc Transport Systems programme graduates well-equipped to pursue successful careers across various sectors of the transport industry, including:

1. Public Sector Organisations
2. Road Transport Subsector
3. Railway Sector
4. Private Transport Service Organisations
5. Private Consultancies
6. Non-Governmental Organisations (NGOs)
7. Development Partners
8. Metropolitan and Municipal Assemblies
9. Urban Public Transport Organisations
10. Financial Institutions
11. Academic and Research Institutions

Experts' evaluation

Based on the discussion with all relevant stakeholders, the experts find that the Master's degree programme "Transport Systems" aligns closely with the stated rationale of addressing gaps in transport knowledge not covered by undergraduate Civil Engineering curricula. The programme aims to fill critical gaps in advanced

transport knowledge areas such as transport sustainability, road safety, transport modelling, intelligent transport systems, sustainable materials, and pedagogical tools. Additionally, the experts recommend that it should address decarbonation challenges by incorporating alternative solutions like electric mobility and bio-fuels, among others. This alignment is crucial as it equips students with the necessary advanced skills and knowledge required to tackle contemporary transport challenges effectively. The experts point out that the programme rationale and title are too broad, lacking the specificity required to clearly communicate the unique focus on African transport challenges (**Finding 1a and 1b**). Africa faces distinct issues such as rural accessibility, urban congestion, underdeveloped infrastructure, and the necessity for sustainable and inclusive transport solutions. A title that explicitly reflects these particular challenges could better convey the programme's specific aims. This would immediately highlight the programme's regional relevance and targeted approach. From the expert's point of view, the transport sector in Africa is deeply intertwined with broader developmental and socioeconomic contexts. Transport systems play a crucial role in economic development, poverty alleviation, and social equity. Furthermore, aspects of sustainability and inclusivity are highly relevant in addressing Africa's transport challenges.

A similar line of argument is the potential need for refinement in the titling of the specialisations within the programme. The current specialisations, "Infrastructure and Engineering" and "Urban Transport and Operations," may create ambiguity. A more precise title, such as "Infrastructure Engineering," would better reflect the focus on the engineering aspects of infrastructure. This change would also provide consistency with the naming of the other specialisation (**Finding 3**).

The experts have discussed and analysed the intended learning outcomes (ILOs) on the programme level with the academic leadership of the programme. The experts note that the ILOs are comprehensive and well-articulated, covering a broad range of skills and knowledge areas. They aim to provide students with a thorough understanding of transport systems, principles of transport demand, land use, policy frameworks, and the ability to critically analyse both qualitative and quantitative data related to transport systems. The programme also emphasises transport simulation and modelling, supply management, infrastructure design, logistics networks, spatial analysis, safety, sustainability, and group work skills.

However, further clarification regarding the differentiation of ILOs between the MSc and MPhil programmes is necessary. The MSc programme focuses on practical skills for immediate application in the transport industry, whereas the MPhil programme emphasises research and original contributions to knowledge, preparing students for careers in academia, research, or policy-making. Explicitly delineating these distinctions in the ILOs would help students understand the unique benefits of each path, aiding them in making informed decisions based on their career aspirations (**Finding 4**).

During the site visit, the panel of experts discussed the curriculum with the relevant stakeholders. In general, the curriculum structure for each specialisation is well-organised and provides a balanced mix of core and elective courses. This structure is particularly crucial for an African Centre of Excellence, where addressing regional transport challenges and fostering sustainable development are priorities. This ensures that students understand the programme's requirements, helping them plan their studies effectively. Detailed descriptions of core and elective courses, along with their relevance to the specialisations, enable students to make informed decisions aligning with their career goals and academic interests. For an African Centre of Excellence, this clarity is vital to attract students from diverse backgrounds and ensure they are prepared to address the continent's transport challenges. The programme offers a range of elective courses to allow students to tailor their education to their specific interests and career goals. This flexibility is essential given the diverse backgrounds and aspirations of students.

Despite that general impression, the experts believe that the curriculum can be further enhanced by adding some components to the curriculum, namely aspects of Freight Logistics and Supply Chain, and the correlation

of transport and society. The experts believe that introducing a course on freight logistics and supply chain management, possibly in collaboration with the College of Business, addresses a significant gap in the current curriculum. The African continent faces unique logistical challenges due to its vast geography, diverse terrain, and varying levels of infrastructure development. Efficient logistics and supply chain management are crucial for improving trade, reducing costs, and enhancing overall economic development. By including this course, the programme would equip students with critical skills to manage and optimise logistics networks effectively, addressing transport system inefficiencies and fostering economic growth. This interdisciplinary approach, integrating technical knowledge with business acumen, is essential for the successful management of transport systems (**Finding 5**).

The second aspect concerns a deeper understanding of the intersection of transport and society in Africa. Making the "Transport and Society" course mandatory and possibly extending it over two semesters would ensure that all students gain a comprehensive understanding of the social aspects of transport systems. This is particularly important for an African Centre of Excellence, given the continent's diverse socio-economic landscape. The experts discussed with the relevant stakeholders that understanding the intersection of transport and society is essential for creating sustainable and inclusive transport solutions. Making this course mandatory ensures that all students gain insights into how transport systems impact society, including issues related to equity, accessibility, and social inclusion, and how they play a major role in connecting basic and necessary services such as education, health, housing, and more. Extending the course would allow for a more in-depth exploration of these issues, preparing students to develop transport solutions that are technically sound, socially responsible, and fit for purpose (**Finding 6**).

The experts analysed current research projects and theses of the programme during the on-site visit. The experts note that the research project and thesis components allow students to engage in in-depth study and contribute to original knowledge in transport systems. For an African Centre of Excellence, this research is particularly important as it addresses region-specific issues, such as developing sustainable transport solutions, the impact of climate change on transport infrastructure, and the integration of innovative technologies in transport systems. Encouraging research that focuses on these areas helps build a body of knowledge directly relevant to the continent's needs and challenges. In addition, the industrial internship provides students with hands-on experience and the opportunity to apply their knowledge to real-world problems.

In summary, the experts believe that the Master's programme "Transport Systems" offers a well-defined and flexible curriculum structure offering a unique perspective on transport systems in Africa. It is believed that the changes recommended, e.g., introducing relevant new courses, making critical courses mandatory and expand those, will contribute to a more comprehensive education that prepares students to address the transport challenges of the African continent.

Conclusion

The criterion is partially fulfilled.

1.3 Transport Leadership (M.Sc.)

Description

Intended learning outcomes on the programme level

As stated in the self-evaluation report, the Master's programme "Transport Leadership" (M.Sc.) aims to provide comprehensive knowledge and practical skills in transportation leadership. The programme focuses on:

1. Planning, conducting, presenting, and reporting major independent research projects in transportation leadership.
2. Understanding and applying mitigating measures to counteract the risks and impacts of transport sector projects.
3. Critically analysing, evaluating, and interpreting qualitative and quantitative data related to the African transport sector.
4. Formulating and testing concepts and hypotheses related to transportation planning, engineering, operations, and their impacts within the African transport sector.
5. Making informed judgments on complex and uncertain issues, such as interpreting the diverse factors affecting the African transport sector.

Structure of the curriculum

The programme is a taught programme comprising ten compulsory courses and two elective courses, totalling twelve courses. Additionally, students must complete a project in a transport-related field. The programme includes case study project sessions and presentations led by industry experts. Successful graduates are awarded a Master of Science in Transport Leadership.

Semester One

Core Courses:

1. CETL 551: Transportation Leadership (3 credits)
2. CETL 553: Leadership Development (3 credits)
3. CETL 555: Management and Business Operations (3 credits)
4. CETL 557: Research Design Methodology and Statistics (3 credits)
5. Elective Course (3 credits)

Elective Courses (One out of three):

1. CETL 561: Transport Project Procurement (3 credits)
2. CETL 563: Transport Project Management (3 credits)
3. CETL 565: Transport Project Assessment (3 credits)

Semester Two

Core Courses:

1. CETL 552: Principles of Transport Engineering (3 credits)
2. CETL 554: Transport System and Operations (3 credits)
3. CETL 556: Transport Policy and Planning (3 credits)
4. CETL 558: Transport and Society (3 credits)
5. Elective Course (3 credits)
6. CETL 568: Dissertation in Transport Leadership (6 credits)

Elective Courses (Select One):

1. CETL 562: Transportation Finance and Economics (3 credits)
2. CETL 564: Transport Asset Management (3 credits)
3. CETL 566: Public Transport System (3 credits)

Graduation profile

ACETRECK expects that graduates of the “Transport Leadership” Master’s programme are well-prepared for a wide range of career opportunities in the transport industry. Employment prospects include roles in public sector organisations, where graduates can contribute to policy-making and strategic planning for national and regional transport systems. In the aviation industry, they can oversee airport operations, logistics, and safety management.

The road and railway sectors also offer numerous opportunities, including project management, infrastructure development, and maintenance roles. Graduates may find positions in private transport service organisations, where they can manage operations, improve service delivery, and enhance customer satisfaction. Private engineering consultancies present opportunities for graduates to provide expert advice on transport projects, conduct feasibility studies, and design transport systems.

Additionally, non-governmental organisations and development partners often seek professionals with expertise in transport leadership to manage projects that improve transportation infrastructure and accessibility in developing regions. Graduates may also choose to become self-employed, offering consultancy services or starting their own transport-related businesses.

Urban public transport organisations require skilled professionals to manage and optimise public transit systems, ensuring efficient and sustainable urban mobility. Overall, the MSc in Transport Leadership provides graduates with the skills and knowledge necessary to excel in various high-level roles across the transport sector, both locally and internationally.

Experts’ evaluation

The Master’s programme “Transport Leadership” aims to provide comprehensive knowledge and practical skills in transportation leadership. The discussion with the relevant stakeholders clarified the high demand and need for such a programme on the African continent. The experts note that it is a comprehensive curriculum which is built on a clear logic. However, the intended learning outcomes at the programme level, while meaningful, appear somewhat disconnected from the overall rationale of the programme, particularly in the context of Africa’s unique transport challenges and opportunities. The experts point out that there is a need for further clarification on the intended learning outcomes. Currently, the stated intended learning outcomes focus on essential academic and technical skills: planning and conducting research projects, applying mitigating measures for transport sector risks, critically analysing data, formulating and testing hypotheses, and making informed judgments on complex issues within the transport sector. These are fundamental skills for any advanced programme in transport leadership. However, while these ILOs are undoubtedly valuable, they fall short of explicitly addressing the broader competencies necessary for effective leadership in the African transport context. The programme could benefit from a more explicit articulation of leadership skills tailored specifically to the African transport industry. This significant gap in the current curriculum is the lack of a clear definition and exploration of leadership specific to the transport sector in Africa. As stated earlier, while the programme includes general leadership and management courses, it does not explicitly focus on what constitutes effective leadership in transportation relevant for the African continent. This omission leaves students underprepared for the unique demands and challenges they will face, particularly within the African context (**see Finding 1a and b**). To address this gap, dedicated courses could delve into the qualities, skills, and strategies of successful transport leaders. Effective transport leadership requires strategic visioning tailored to Africa’s diverse geography and rapid urbanisation. Change management is also critical for guiding organisations through transitions, such as adopting new technologies and policies, which are especially pertinent in Africa’s evolving transport systems. Ethical leadership is another vital component. Transport leaders must navigate complex ethical dilemmas, balancing economic, social, and environmental considerations. In Africa, this includes addressing issues like corruption and ensuring equitable access to transport services. Training

in ethical decision-making will help leaders ensure their actions positively impact society and the environment. Additionally, awareness and training on gender-based violence and stereotypes around women should be included, especially given that the transport sector is predominantly male-dominated.

Additionally, there is a significant need to incorporate ethical considerations and sustainability into the programme's learning outcomes (**Finding 7**). Modern transport leadership roles demand not only technical and managerial skills but also a strong ethical foundation and a commitment to sustainable practices. This is particularly relevant in the African context, where transport systems must be developed in ways that are equitable, environmentally sustainable, and economically viable. The programme should therefore aim to instil in its graduates a deep understanding of ethical leadership and sustainability principles, preparing them to make decisions that balance economic growth with environmental stewardship and social equity.

Despite the above-mentioned findings, the experts believe that the curriculum proposed for accreditation is meaningful with its individual components. However, as discussed on site, the curriculum structure requires clarification to ensure that it effectively supports the intended learning outcomes and adequately prepares students for leadership roles in the transport sector. The programme consists of ten compulsory courses and two elective courses, totalling twelve courses, alongside a project in a transport-related field. The first semester focuses on foundational courses in transportation leadership, leadership development, management, and research design. The second semester covers transport engineering, system operations, policy and planning, and transport society, culminating in a dissertation. However, the structure lacks clarity in terms of how these courses interrelate and build upon each other to develop the comprehensive leadership skills intended. A clearer roadmap or pathway showing the progression from foundational knowledge to advanced leadership skills would enhance the coherence of the curriculum (**Finding 8**).

To make the content more relevant and impactful, the curriculum should integrate case studies and practical examples from across the African continent (**Finding 9**). For instance, case studies on successful transport projects in African cities can illustrate how leadership principles are applied in practice and highlight the innovative solutions that have been developed to overcome local challenges. Similarly, practical examples of transport initiatives in rural areas can shed light on the complexities of improving accessibility and connectivity in regions with limited infrastructure.

One way could be by incorporating guest lectures and seminars by African transport leaders and policymakers, which can provide students with firsthand insights into the strategies and considerations that drive successful transport projects in the region. These interactions can bridge the gap between theory and practice, allowing students to learn from real-world experiences and better understand the nuances of transport leadership in Africa.

The inclusion of region-specific challenges and opportunities will not only make the course more engaging but also ensure that students are better prepared to apply their learning in their future careers. By understanding the local context, students can develop more effective and sustainable solutions that are tailored to the needs of African communities. This approach will foster a new generation of transport leaders who are not only skilled in leadership principles but also deeply aware of the socio-economic and environmental factors influencing transport systems in Africa.

In summary, the experts find overall, that the Master's programme has a solid foundation, with meaningful goals, although several areas require clarification and enhancement as mentioned above. The discussion on site showed that graduates of the programme find meaningful jobs after their graduation, enhancing the transportation sector in Ghana and beyond. It is believed that, by addressing these areas, the programme can better equip graduates with the skills and knowledge necessary to excel in various high-level roles across the transport sector, both locally and internationally.

Conclusion

The criterion is partially fulfilled.

1.4 Transport Systems (PhD)

Description

According to the SER, the PhD programme in Transport Systems aims to advance knowledge and research in transport infrastructure and operations. It targets individuals pursuing careers in academia, research, or policy-making, with the goal of producing graduates capable of making significant contributions to the field. The intended learning outcomes of the programme are to:

- Equip students with advanced research skills and knowledge to conduct independent and original research in the transport sector, thereby advancing the field.
- Develop a comprehensive understanding of the transport system, its various modes, and its evolution, along with principles of transport demand, land use, and policy.
- Foster the ability to critically analyse, evaluate, and interpret qualitative and quantitative transport data across different modes.
- Enhance the capability to research, analyse, and synthesise solutions to contemporary transport-related issues with a multidisciplinary perspective.
- Provide a solid foundation for pursuing careers in academia, research, or policy-making within the transport systems field.

Spanning three years, the programme includes core and elective courses in the initial two sessions, followed by dedicated research. There are two specialisations: Infrastructure and Engineering, and Urban Transport and Operations, catering to both engineering and non-engineering backgrounds. Core courses cover research methods and data science, while electives offer specialised topics like transport infrastructure design, safety, urban mobility, and project management.

Graduates are equipped for careers in various sectors including academia, public and private transport organisations, consultancies, NGOs, and governmental bodies. The programme fosters the skills needed for high-level employment globally in roles such as research, public sector positions, transport services, and urban transport planning.

Experts' evaluation

Based on the information gained on site and follow up discussions with multiple internal and external stakeholders, the PhD programme "Transport Systems" is designed to advance knowledge and research in transport infrastructure and operations. The programme aims to produce graduates capable of making significant contributions to the field, particularly those pursuing careers in academia, and research. The discussions onsite focussed particularly on the topic of how the programme can benefit the African transportation sector and consider effectively the specific challenges of the African continent. Primarily, the intended learning outcomes at the programme level are strong and meaningful. The individual ILOs are suitable for the PhD level and comparable the European Qualifications Framework (EQF). They reflect academic and labour market needs and put an emphasis on advanced research skills and comprehensive transport system knowledge. However, the experts believe that the programme, as outlined in the sections above, do not facilitate maximisation of research students' full potential(see **Finding 1a and b**). Graduates must develop practical solutions for the continent's specific transport challenges, such as underdeveloped infrastructure and significant urban-rural disparities. African transport infrastructure faces issues like inadequate road networks and limited public transport, so learning outcomes should focus on skills for sustainable infrastructure development,

maintenance, and innovative design solutions. Addressing Africa-specific transport challenges requires strong research and innovation, so graduates should conduct high-quality research and develop methodologies and technologies tailored to the African context. By focusing on these areas, the programme ensures graduates are well-equipped to address Africa's unique transport needs, driving progress and development across the continent. The experts are aware that in fact the programme focuses on topics which are highly relevant to the African continent, and the screening of evidence during the site visit manifested this impression, however, this specific focus has to be reflected in the intended learning outcomes at the programme level. It is believed that these changes will attract a broader representation and diversity of students in the future and will support ACETRECK's vision to strengthen its position in the African higher education sector.

The programme spans three years, with a structured timeline that includes core and elective courses in the first two semesters followed by dedicated research. This timeline provides clear milestones and guidance throughout the duration of studies, ensuring that students remain on track and receive consistent support. Regular assessments and feedback mechanisms can further enhance this structured approach. The experts have examined the curricular structure of the PhD programme. The discussions and the final theses presented during the site visit provided evidence that the programme includes a highly suitable content for the PhD level, which is comparable to level 8 of the European Qualifications Framework (EQF).

Conclusion

The criterion is partially fulfilled.

2. Procedures for quality assurance

Bachelor's/Master's degree

The programme is subject to the higher education institution's policy and associated procedures for quality assurance, including procedures for the design, approval, monitoring, and revision of the programmes.

A quality-oriented culture, focusing on continuous quality enhancement, is in place. This includes regular feedback mechanisms involving both internal and external stakeholders.

The strategy, policies, and procedures have a formal status and are made available in published form to all those concerned. They also include roles for students and other stakeholders.

Data is collected from relevant sources and stakeholders, analysed, and used for the effective management and continuous enhancement of the programme.

[ESG 1.1, 1.7 & 1.9]

Doctoral degree

The programme is subject to the higher education institution's policy and associated procedures for quality assurance, including procedures for the design, approval, monitoring, and revision of the programmes.

A quality-oriented culture, focusing on continuous quality enhancement, is in place. This includes regular feedback mechanisms involving both internal and external stakeholders.

The strategy, policies, and procedures have a formal status and are made available in published form to all those concerned. They also include roles for students and other stakeholders.

Data is collected from relevant sources and stakeholders, analysed, and used for the effective management and continuous enhancement of the programme.

[ESG 1.1, 1.7 & 1.9]

Description

Quality assurance policies at KNUST

KNUST outlines in its SER the presence of both a centralized unit, the Quality Assurance and Planning Unit (QAPU), and decentralized quality assurance units at the departmental level. The overarching goal of these Quality Assurance (QA) units is to support capacity enhancement in training programmes, enhance the teaching and learning environment, improve course delivery methods, elevate the quality of teaching and research materials, strengthen student-lecturer relations, and assess the teaching staff's overall quality.

To ensure the implementation of quality assurance policies within the University, KNUST has established a central Quality Assurance and Planning Unit (QAPU) that is decentralized across all academic departments. The primary goal of KNUST's quality assurance procedure is to enhance the effectiveness of training and research delivery. This process aims to develop tailor-made training programmes for capacity enhancement, improve the teaching and learning environment, enhance the delivery methods for courses by lecturers, upgrade the quality of teaching slides, teaching materials, and research resources, foster better student-lecturer relations, and use outcomes in assessing the quality of teaching for academic staff promotion.

Structure of Quality Assurance

Workload and Course Assessment

Course workload and assignments are assessed based on teaching load, content, group exercises, master plans, internships, field trips, seminars, course significance, relevance, and importance. This comprehensive assessment ensures that students receive a balanced and reasonable workload.

Policy Development

QAPU champions policy development, ensuring the implementation through sub-committees. KNUST has developed several policies to ensure quality in teaching, research, and services, including Quality Assurance Policy, Research Policy, Ethics Policy, Teaching Policy, Distance Education Policy, HIV/AIDS Policy, Intellectual Property Policy, Procurement Policy, Disability Policy, Health and Safety Policy, Maintenance Policy, and Open Source Policy.

Financial and Administrative Management

KNUST employs a Financial Manual and an Administrative Manual to guide its financial and administrative management. Quality assurance for teaching and learning is ensured through curriculum reviews conducted every four years by a committee set up by the Departmental Board, including representatives from business and industry. Courses and lecturers are evaluated by students every semester through an online assessment system. Records of past students are maintained and developed into an alumni database for tracer studies and short courses.

Data Collection and Utilisation

Data on teaching loads, student/graduate rates, and failure rates is utilized to inform quality assurance processes. The University applies for national accreditation for all programmes every four years, involving stakeholder participation to revise curricula, teaching aids, and course design.

Stakeholder Involvement in Quality Assurance

The SER elaborates that at TRECK and KNUST stakeholder engagement is crucial for continuous improvement of educational programmes. According to the SER, this includes the following categories:

Students

TRECK KNUST encourages active student engagement through regular open-door sessions for direct communication with administrators and coordinators, satisfaction surveys conducted after each module to gather feedback on courses and teaching methods, exit surveys for graduating students to provide comprehensive feedback on their academic journey, and a grievance reporting portal for the confidential submission of grievances.

Labour Market Representatives

Engagement with labour market representatives ensures programmes align with industry needs through the Sectoral Advisory Board (SAB), which consists of industry partners providing insights and participating in quarterly meetings. The International Scientific Advisory Board (ISAB) contributes to research activities and supervises research students. TRECK KNUST has established partnerships with private and public institutions offering internships and consulting opportunities, and collaborates with other institutions to organize academic events. Regular consultations with industry experts help understand current trends and skill requirements.

Monitoring Graduates' Career Placement

To gauge programme effectiveness and ensure graduates are well-prepared for successful careers, TRECK KNUST implements comprehensive monitoring mechanisms. Career placement tracking involves regularly tracking and analyzing graduates' career placements to assess programme relevance. Collaboration with alumni and industry partners helps gather information on graduates' employment, positions, and contributions to the field.

Student Workload Assessment

Student workload and assignment of credits are systematically reviewed through syllabi, student feedback, and faculty assessments. This ensures a balanced workload and informs programme enhancements, such as revising credit distribution or refining assessment methods.

Use of Information from Partners

Information on labour market requirements is collected through consultations with industry experts and relevant institutions. This data guides curriculum development to ensure graduates are well-prepared for employment, with clear descriptions of potential fields of employment aligning skills with market needs.

Continuous Improvement through Data Collection

Information from surveys, focus groups, and industry consultations is systematically analyzed to identify strengths and areas for improvement. Findings inform curriculum adjustments, teaching methods, and resource allocation. Examples include student progression and success rates archived in the Student Information System and reviewed annually, employability of graduates tracked through alumni surveys and interactions, profile of student population regularly presented to management for action, learning resources evaluated for availability and need for improvement, and the institution's key performance indicators included in the Quality Manual Handbook.

Addressing High Failure Rates and Curriculum Effectiveness

Modules with high failure rates are identified through performance analysis, and targeted interventions such as additional tutoring, curriculum adjustments, or enhanced teaching resources are implemented as needed. Final grades of past graduate cohorts and completion/drop-out rates are analyzed to inform strategies for improving student retention and success.

Accreditation and Stakeholder Feedback

Departments apply for national accreditation for all programmes every four years. This involves stakeholder participation through evaluations and discussions, leading to revisions in curricula and teaching aids. Feedback to stakeholders, especially the industry, is provided through annual reports and research studies, with plans for a more organized feedback system.

Experts' evaluation

Based on the evidence during the site visit, the institutional QA framework of KNUST outlines a structured approach to ensuring the quality of education and research at the institution. The experts appreciate that KNUST applies a system of centralized and decentralized units which enables flexibility for the various departments. The overarching framework has established the Quality Assurance and Planning Unit (QAPU), which is involved in activities on central and departmental levels. During the on-site discussions with stakeholders, it was highlighted that while the QAPU's goals are well-articulated, however, there is a need for further clarification regarding the specific duties and responsibilities of the QA board in respect of ACETRECK. During the discussions with stakeholders at KNUST, it was evident that while the decentralized approach to QA offers flexibility and adaptability to departmental needs, it also requires robust coordination mechanisms. By clearly delineating the duties and responsibilities of the QA board, KNUST can ensure that all aspects of quality assurance in the light of the ACETRECK are adequately addressed, promoting a cohesive and unified approach to maintaining and enhancing educational quality across the institution (**Finding 10**).

KNUST's approach to involving a wide variety of stakeholders in the preparation of (external) quality assurance processes is highly commendable. Students, teachers, and alumni all contribute to the continuous improvement of educational programmes. The inclusion of students through open-door sessions, satisfaction surveys, and grievance reporting portals provides multiple channels for feedback, fostering a responsive and adaptive learning environment. However, discussions revealed that there is room for improvement in the integration of feedback from industry stakeholders. While the Sectoral Advisory Board (SAB) and the International Scientific Advisory Board (ISAB) provide valuable insights, the frequency and depth of these interactions with industry partners employing graduates could be increased and diversified to include international and local/African, multi-sectoral perspectives. This approach would help ensure that the programmes remain aligned with the rapidly evolving industry standards and requirements. The systematic analysis of information from surveys, focus groups, and industry consultations to inform curriculum adjustments and teaching methods demonstrates KNUST's commitment to continuous improvement. However, stakeholders pointed out that there could be more structured mechanisms for providing feedback to the industry, ensuring a two-way communication flow that benefits both the institution and its partners (**Finding 11**).

The site visit verified that the programmes under accreditation utilise data on teaching loads, student/graduate rates, and failure rates to inform quality assurance processes, which can be seen as a strength of KNUST's QA approach. The analysis of this data supports evidence-based decision-making, leading to targeted interventions. The creation of an alumni database for tracer studies and short courses exemplifies a forward-thinking approach to monitoring and enhancing graduate outcomes. Monitoring graduates' career placement is essential for assessing programme effectiveness.

Conclusion

The criterion is partially fulfilled.

3. Learning, teaching and assessment of students / Learning and assessment of students

Bachelor's/Master's degree

The delivery of material encourages students to take an active role in the learning process.

Students are assessed using accessible criteria, regulations, and procedures, which are made readily available to all participants and which are applied consistently.

Assessment procedures are designed to measure the achievement of the intended learning outcomes.

[ESG 1.3]

Doctoral degree

The form of supervision and/or course structure is adequate and corresponds with the intended learning outcomes.

Students are assessed using accessible criteria, regulations, and procedures, which are made readily available to all participants and which are applied consistently.

Assessment procedures are designed to measure the achievement of the intended learning outcomes.

[ESG 1.3]

Description**3.1 Learning and teaching**

From the documentation available, various teaching methods are employed in TRECK, such as lectures, seminars, PowerPoint presentations, guided reading, design activities, laboratory sessions, individual and group projects, master plans, community studies, and field visits. The approach to learning and teaching embraces student-centred learning to ensure a balanced approach for mature students, employed individuals, and people with disabilities. Special attention is given to mature candidates and foreign students, who may receive additional instruction on an individual or group basis. The university supports international students with language classes and provides a well-stocked library with relevant resources for their respective programs of study.

3.2 Assessment of students

According to the SER, the academic assessment framework at KNUST encompasses various strategies to support students in their learning journey. Throughout course modules, students are provided with worked examples tailored to the specific assessment types they will encounter. Additionally, students have the opportunity to familiarize themselves with potential examination formats by accessing previous questions. Assignments are thoughtfully crafted to offer a preview of the kinds of test questions they might encounter. In some instances, lecturers engage in discussions with students at the conclusion of a module, delving into different types of examination questions.

The university adopts a modular system (Block) approach, culminating in examinations held at the conclusion of each course. To facilitate students' preparation, the School of Graduate Studies has published a comprehensive handbook addressing examination and dissertation-related matters. This handbook serves as a valuable guide, aligning with the university's specified rules and regulations that form the foundational framework for all organized examinations. These rules are made readily available to students, either through direct distribution or by being prominently posted on student notice boards.

Master's programmes

Students enrolled in the Master's programmes are assessed through various modes, including coursework assignments, group projects, seminar presentations, written examinations, and a thesis. Each taught course within a module will have a corresponding examination. The weighting for continuous assessment and final examinations depends on the course content as outlined in the course description. Non-taught courses will be assessed through continuous assessment and course presentations, with a pass mark set at 50%. Students failing a course must re-sit it until achieving a pass mark of 50% or higher. Course assignments are evaluated

by Course Instructors, while group projects are assessed via written reports and oral presentations before a panel. The MSc thesis are assessed by External and Internal Examiners, along with an oral examination.

The assessment components are divided into Continuous Assessment (40% of overall assessment) and Examination (60% of overall assessment). Continuous assessment includes assignments, group work, seminar presentations, and potentially mid-semester examinations. Examinations, forming the majority of assessment, are written under formal conditions immediately after each module.

To qualify for the degree, candidates must pass all required courses, accumulate a minimum of 36 credit hours, achieve a minimum cumulative weighted average of 55%, complete research leading to an examinable thesis, satisfy all departmental, college, and university requirements, and successfully defend the thesis. Additionally, candidates qualify for programme specialization by completing the required elective options.

PhD programme

According to the SER, students pursuing the PhD in Transport Systems undergo a multifaceted assessment, including coursework, comprehensive exams, seminar presentations, and the defence of a doctoral thesis or dissertation.

a. **Coursework:** PhD candidates complete a minimum of three courses to deepen their understanding of the field. Course assessment involves coursework, assignments, and written examinations. Continuous assessment constitutes 40% of the overall assessment, including individual assignments, group work, and presentations. Examinations contribute 60% and occur under formal conditions immediately after the coursework.

b. **Comprehensive exams:** Candidates must pass comprehensive exams to demonstrate mastery of the subject matter and research ability.

c. **Research proposals:** As part of the comprehensive examination, candidates develop and defend a research proposal outlining the scope and objectives of their doctoral thesis or dissertation.

d. **Thesis or Dissertation defence:** The final assessment involves evaluating the candidate's doctoral thesis or dissertation, along with an oral defence.

Examinations are conducted for each taught course, with a pass mark set at 50%. Students failing a course must re-sit it until achieving a pass mark of 50% or higher. The doctoral thesis or dissertation undergoes assessment by External and Internal Examiners, along with an oral examination.

To be awarded the Doctor of Transport Systems degree, candidates must:

- Pass all required courses and the comprehensive examination with a minimum mark of 55%.
- Achieve a minimum cumulative weighted average of 55%.
- Submit and successfully defend a doctoral thesis or dissertation.
- Provide evidence of submitting at least two manuscripts from the thesis for publication in peer-reviewed journals.
- Satisfy all requirements of TRECK, the Department, College, Graduate School, and the University.

Experts' evaluation

Based on the documentation provided and statements of teaching staff, alumni and current students studying the programmes under consideration, the experts note the comprehensive array of teaching methods employed at TRECK. This includes lectures, seminars, PowerPoint presentations, guided reading, design activities, laboratory sessions, individual and group projects, master plans, community studies, and field visits. The experts believe that this diverse approach ensures a balanced and inclusive educational environment catering to mature students. Discussion with students demonstrated notably, that TRECK has a focus on student-

centred learning which is commendable, providing additional instruction and support for mature and international students, including language classes and access to a well-stocked library.

During the on-site discussion with various stakeholders, including faculty members, students, and administrative staff, several strengths and areas for improvement were identified. The flexibility in teaching methods is highly appreciated by students, particularly the hands-on experience provided through laboratory sessions and field visits. However, some stakeholders suggested reconsidering the suitability of the modular (Block) approach, especially for complex subjects requiring more continuous engagement. The experts believe that while the block approach has its advantages in terms of intensive focus and efficiency, it may not be the most suitable method for teaching complex subjects that require more time for deep learning, continuous engagement, and practical application. Therefore, stakeholders suggested and the experts agree that consideration should be given to more flexible and extended approaches to better support student learning and well-being (**Finding 12**).

The PhD programme includes coursework for PhD students at the earlier stage of the programme. During the discussion it was highlighted that more interdisciplinary projects, such as those involving "Transport & Society," could enhance the PhD programme. These projects would allow students to explore the broader impacts of transport systems and foster collaboration across different fields. The experts believe that incorporating interdisciplinary projects early in the PhD programme enriches students' academic experience, broadens their understanding of the field, enhances collaborative skills, and ultimately leads to higher quality and more impactful research (**Finding 13**).

A concern regarding the further integration of PhD students into teaching was also raised. Increasing PhD students' involvement in teaching could provide valuable teaching experience, enhance their pedagogical skills, and contribute to their professional development. This integration could also benefit undergraduate and Master's students by bringing fresh perspectives and recent research insights into the classroom (**Finding 14**).

The assessment framework at KNUST is robust, encompassing a variety of strategies to support students' learning. Worked examples and previous questions help students familiarize themselves with examination formats, while assignments preview potential test questions. The practice of discussing different types of examination questions at the end of modules is particularly beneficial.

The assessment strategy for the Master's programmes involves a combination of coursework assignments, group projects, seminar presentations, written examinations, and a thesis. Continuous Assessment (40%) and Examination (60%) form the overall assessment, with a pass mark set at 50%. The PhD candidates undergo an assessment process, including coursework, comprehensive exams, seminar presentations, and thesis defence. The requirement to pass all courses and the comprehensive exam with a minimum mark of 55%, along with submitting manuscripts for publication, sets a high standard for academic excellence.

However, stakeholders raised concerns regarding examination regulations, particularly the re-sit regulations for ACETRECK. It was noted that the current policy, requiring students to re-sit failed courses until they achieve a pass mark of 50%, could be reconsidered to allow for more flexible remediation options, such as supplementary assignments or alternative assessments. The experts follow this line of argument pointing out that the current re-sit regulations for ACETRECK present several problems related to student stress, lack of flexibility, educational equity, pedagogical effectiveness, and resource allocation (**Finding 15**).

Furthermore, the experts suggest that the assessment strategy for the Master's programme "Transport Leadership" could be refined to better measure leadership qualities. This might include incorporating leadership-specific projects, peer evaluations, and reflective essays that capture the nuances of leadership development (**Finding 16**).

The involvement of external examiners is another critical point. While external and internal examiners assess the Master's thesis and doctoral dissertations, there is room for improvement in their involvement at earlier stages, particularly in the approval of examination questions. This could enhance the objectivity and fairness of assessments.

The limited involvement of external examiners in approving examination questions at TRECK presents several challenges. Their early participation can ensure objectivity and fairness, reducing biases from internal examiners. It also enhances quality assurance by aligning assessments with learning objectives and international standards, incorporating best practices from other institutions. The experts believe that a greater involvement of external examiners improves credibility and transparency, signalling a commitment to high academic standards and building trust with stakeholders. Additionally, it allows for valuable feedback and continuous improvement, keeping the programme competitive and relevant (**Finding 17**).

Conclusion

The criterion is partially fulfilled.

4. Student admission, progression, recognition and certification / Legal status, admission and certification

Bachelor's/Master's degree

Consistently applied, pre-defined, and published regulations are in place which cover student admission, progression, recognition, and certification.

[ESG 1.4]

Doctoral degree

The institution is entitled to award a doctorate.

Consistently applied, pre-defined, and published regulations are in place which cover student admission, progression, recognition, and certification.

[ESG 1.4]

Description

4.1 Admission

The SER outlines the following admission requirements and processes for the study programmes under accreditation:

4.1.1 Admission requirements

MSc/MPhil Transport Systems (Infrastructure and Engineering Specialisation)

Applicants must possess a minimum Second Class (Upper Division) BSc degree or a recognized equivalent qualification from a reputable university in any of the following engineering disciplines: Civil Engineering, Geological Engineering, Geomatic Engineering, or any other engineering discipline related to transport, with good mathematical skills. Additionally, applicants must pass a selection interview. Those whose qualifications do not directly align with the above requirements will have their academic transcripts assessed and, if acceptable, will be invited to an interview. Applicants may also be asked to meet additional requirements, such as submitting a statement of purpose and a research proposal.

MSc/MPhil Transport Systems (Urban Transport and Operations Specialisation)

Applicants must possess a minimum Second Class (Upper Division) degree or a recognized equivalent qualification from a reputable university in any of the following disciplines: Mathematics or Statistics, Physics, Planning, Architecture, Building Technology, Construction Management, Development Studies, Geography, or any engineering discipline related to transport. Additionally, applicants must pass a selection interview. Those whose qualifications do not directly align with the above requirements will have their academic transcripts assessed and, if acceptable, will be invited to an interview. Applicants may also be asked to meet additional requirements, such as submitting a statement of purpose and a research proposal.

MSc Transport Leadership

Candidates must possess a minimum Second Class (Upper Division) degree or its equivalent in a relevant Engineering, Management, or Planning discipline, or a recognized equivalent qualification from a reputable university. Additionally, candidates need at least five years of relevant working experience in the transport sector, and professional status will also be considered. International applicants must provide evidence of an IELTS score of 6.5, with not less than 5.5 in any component, or an equivalent qualification acceptable to the university taken within the last two years. Applicants are also required to submit a curriculum vitae, a short portfolio demonstrating technical and managerial experience in the transport sector, and a recommendation from their employer. An interview is also part of the admission criteria.

PhD Transport Systems (Infrastructure and Engineering Specialisation)

Applicants must possess a Master's degree in Transport Systems (Infrastructure and Engineering), Road and Transport Engineering, Highway Engineering, or any other related discipline from a recognized university, with a minimum cumulative weighted average of 60. Additionally, applicants must pass a selection interview, and their academic transcripts will be assessed if their qualifications do not directly align with the requirements. Applicants must submit a research proposal on priority interdisciplinary research themes and make a presentation at the selection interview. Candidates with publications in peer-reviewed journals as the first author, a good research proposal, a strong motivational statement, and relevant work experience are highly considered.

PhD Transport Systems (Urban Transport and Operations Specialisation)

Applicants must possess a Master's degree in Transport Planning, Applied Mathematics (Transport or Operations Research specialisation), Transport Economics, or any other related discipline from a recognized university, with a minimum cumulative weighted average of 60. Additionally, applicants must pass a selection interview, and their academic transcripts will be assessed if their qualifications do not directly align with the requirements. Applicants must submit a research proposal on priority interdisciplinary research themes and make a presentation at the selection interview. Candidates with publications in peer-reviewed journals as the first author, a good research proposal, a strong motivational statement, and relevant work experience are highly considered.

4.1.2 Application Procedure

Applications should be made on the prescribed forms through the KNUST online admissions portal, which can also be accessed through the Regional Transport Research and Education Centre Kumasi (TRECK) online portal. Candidates may be required to upload certified copies of certificates, passport photographs, transcripts, and other relevant materials by the date published on the University/TRECK website for postgraduate applications. Application forms may require the acquisition of a payment voucher from a bank or designated outlet advertised on the KNUST website or the TRECK website.

4.1.3 Selection Procedures

An admissions committee, established by the head of the department after consulting with the programme coordinator, evaluates all applications received. Applications are first assessed to identify those who meet the prerequisites. Shortlisted candidates are then invited for interviews, with dates and locations communicated well in advance. Candidates who achieve the required score are recommended for admission. The list of recommended applicants is sent to the Head of Department and the Graduate School for approval and formal admission into the programme. Admitted applicants are required to indicate their acceptance of the offer by a stipulated date and, if they have not received a scholarship, to show proof of financial support for the duration of the programme. The average number of applications per admittance year ranges between 10 and 30. There are no bridge courses available for applicants who do not meet the admission requirements, except for the language course.

4.2 Progression

Coursework completion is crucial, as stipulated by the Graduate Student's Handbook, requiring students to finish the required coursework within two semesters and achieve a minimum cumulative weighted average (CWA) of 55% to proceed to the thesis phase. MPhil and Ph.D. students must also pass a comprehensive examination, which includes a thesis proposal defense. For students wishing to transition from MSc to MPhil, they must be enrolled in the programme at KNUST, qualify for MPhil at the time of application, have obtained a minimum CWA of 70.00, and demonstrate the capacity for independent research. The additional time required to complete the MPhil programme should be a maximum of 12 months.

Students aiming to upgrade to a PhD must be currently enrolled in a Master's programme by research (MPhil), have passed all required courses with a minimum CWA of 70.00, demonstrate the ability to exercise independent critical thinking, and show capacity for independent research. Additional steps may be required as outlined in the Graduate Student's Handbook.

Thesis progress is monitored through routine progress meetings with thesis advisors to discuss goals, progress, challenges, and strategies for advancement. Students must participate in seminar presentations to present their thesis work to both students and faculty. Research productivity is emphasized, with students encouraged to present their research findings at conferences and publish their work in high-impact journals. MSc and MPhil students are required to publish at least one paper based on their thesis research, while Ph.D. students must publish two papers.

Internships and industry experience are integral to the programmes, requiring students to undertake a minimum of six weeks of internship in a transportation-related organization to build professional networks and deepen their practical knowledge. Upon completion, students must submit an internship report endorsed by their internship supervisors.

Self-assessment and reflection are encouraged at the completion of each course, where students respond to an anonymous survey to reflect on the quality of tuition, identify strengths and weaknesses, and recommend areas for improvement.

The 4-year Ph.D. and 2-year MPhil programme durations are considered feasible and reflective of typical programme durations at Kwame Nkrumah University of Science and Technology. However, the 18-month duration of the MSc programme poses a challenge, primarily because most students are unable to complete their thesis work early enough to align with the University's graduation windows, which typically occur in March and November each year. As of 2023, only 65 out of the 97 MSc students who were expected to graduate have successfully completed their programs. Similarly, of the 15 Ph.D. students slated for graduation by 2023, only four have successfully graduated, with the remainder at various stages of completion.

4.3 Recognition

According to the SER, TRECK has a memorandum of understanding with Birmingham and Napier universities in the UK for student exchange programmes. However, it is stated that procedures for recognizing competencies (course credits) achieved at these higher learning institutions are yet to be established. Competencies acquired outside of the higher education system, such as industry experience, are considered in the admission process.

4.3 Certification

Students who fully fulfil the graduation requirements receive a certificate that shows the name of the student, the programme undertaken, the title of the degree, and the date conferred. Additionally, students are eligible to receive transcripts detailing all courses undertaken, the credit hours, marks, grades, semester and yearly weighted averages, and the title of their thesis.

Depending on the programme pursued, the following academic degrees are awarded upon successful completion: MSc Transport Systems (Infrastructure and Engineering Specialisation), MPhil Transport Systems (Urban Transport and Operations Specialisation), MSc Transport Leadership, Ph.D. Transport Systems (Infrastructure and Engineering Specialisation), and Ph.D. Transport Systems (Urban Transport and Operations Specialisation).

Experts' evaluation

Based on interactions between the experts and relevant stakeholders during the on-site, the experts state that the admission requirements for each programme are clear, specific, and suitably rigorous, ensuring that candidates possess the necessary academic background and skills for success. The Master's programmes in "Transport Systems" (for both specialisations) outline appropriate prerequisite degrees, emphasizing good mathematical skills and relevant discipline knowledge. The Master's programme in "Transport Leadership" distinguishes itself with its requirement for substantial professional experience, thereby attracting candidates with practical industry insights, crucial for leadership roles in transport. The PhD programmes' admission criteria emphasize previous academic achievements, research experience, and publications, aligning well with the research-intensive nature of doctoral studies and ensuring that only candidates with a proven track record of scholarly work are admitted. The requirement for a strong research proposal and a motivational statement further ensures that candidates are both capable and committed to their research goals.

The application procedure is well-defined and accessible, utilizing the KNUST online admissions portal, which facilitates a streamlined process for candidates and allows for efficient submission and management of application materials. The inclusion of certified document uploads ensures the integrity and authenticity of submissions. The selection procedures are thorough, involving multiple layers of assessment, including a preliminary screening of prerequisites, interviews, and a final review by an admissions committee. This multi-step process ensures that only the most qualified and suitable candidates are admitted. The clear communication of interview dates and locations demonstrates a commitment to transparency and candidate convenience.

A recommendation to further enhance the programmes includes strengthening the strategy to attract more female students. Promoting gender diversity and inclusivity within the academic community not only enriches the learning environment with diverse perspectives and experiences but also addresses gender imbalances in the field of transport studies. Implementing targeted outreach and support initiatives can help ensure that more female students are encouraged to apply and succeed in these programmes (**Finding 18**).

The progression policies are robust and well-articulated, emphasizing the importance of coursework completion, thesis proposal defenses, and comprehensive examinations. The requirement for a minimum cumulative weighted average (CWA) ensures that students maintain a high standard of academic performance. The structured pathway for students transitioning from Master's programmes to PhD programmes, is reasonable, providing clear criteria and additional support for those demonstrating exceptional capabilities. The emphasis on routine progress meetings, seminar presentations, and research productivity underscores the institution's commitment to fostering a vibrant academic community. The mandatory publication requirements for Master's and PhD students enhance the research output and visibility of the programmes, contributing to the academic reputation of the institution. The integration of internships and industry experience is a significant strength, providing students with practical insights and professional networks essential for their future careers. The self-assessment and reflection components promote continuous improvement and student engagement with the quality of their education.

One area for improvement is the need for clearer transition requirements from MSc to PhD. This is crucial as it provides a defined roadmap for students aspiring to pursue doctoral studies, ensuring they are adequately prepared and meet all necessary criteria. Clear transition requirements can help maintain high academic standards, reduce uncertainty, and provide students with a clear understanding of the expectations and milestones they need to achieve. This would support students in planning their academic journey more effectively and increase the likelihood of their successful transition to PhD programmes (**Finding 19**).

The existing memorandum of understanding with Birmingham and Napier universities is a positive step towards international collaboration and student mobility. However, the lack of established procedures for recognizing competencies achieved at these institutions should be addressed to fully capitalize on these partnerships (**Finding 20**). Recognition of industry-acquired competencies in the admission process is a progressive approach, valuing practical experience alongside academic qualifications.

The certification process is straightforward and ensures that graduates receive comprehensive documentation of their achievements. The detailed transcripts and certificates provide a complete academic record, which is essential for both further education and professional pursuits. The clarity in the awarding of different academic degrees based on the programme undertaken ensures transparency and recognition of the specific focus areas of the graduates' studies.

Conclusion

The criterion is partially fulfilled.

5. Teaching staff / Academic level of supervisory staff

Bachelor's/Master's degree

The composition (quantity, qualifications, professional and international experience, etc.) of the staff is appropriate for the achievement of the intended learning outcomes.

Staff involved with teaching is qualified and competent to do so.

Transparent procedures are in place for the recruitment and development of staff.

[ESG 1.5]

Doctoral degree

The composition (quantity, qualifications, professional and international experience, etc.) of the staff is appropriate for the achievement of the intended learning outcomes.

Staff involved with teaching is qualified and competent to do so.

Transparent procedures are in place for the recruitment and development of staff.

[ESG 1.5]

Description

According to the SER, KNUST recognizes the importance of high-quality learning resources in promoting student success. To this end, the university provides a range of resources for learning and student support, funded by subvention from the Government of Ghana, grants, student fees, donations, and internally generated funds.

Teaching Staff and Academic Supervisors

Teaching staff provide academic support through regular office hours, email correspondence, and feedback on assignments and exams. Consultation hours allow students to seek clarification on course materials, discuss academic concerns, and receive guidance on research projects. These staff members are drawn from experienced KNUST faculty in the College of Engineering, the College of Arts and Built Environment, the College of Science, and the College of Humanities and Social Sciences.

The programme leverages the knowledge of visiting and adjunct professors from partner universities in Ghana, Nigeria, Switzerland, Germany, the United Kingdom, the USA, and other countries. Additionally, seasoned practitioners and researchers from various industries, including the CSIR-Building and Road Research Institute (BRR) and the Ministry of Roads and Highways, provide support. The diverse expertise and backgrounds of these individuals enrich the learning experience for course participants.

Overall, the programme involves 17 teaching staff, including professors, senior lecturers, and lecturers. These faculty members are engaged in various research activities, such as traffic and demand modelling, urban public transport, transport economics, socio-economic impacts of transport schemes, sustainable transport systems, intelligent transport systems, traffic management, road safety, pavement engineering and materials, urban transport and health, climate effects of transport, integrated logistics and supply chain and environment, GIS, planning, and land use. These experts are available as potential supervisors for individual student research.

Administrative and Technical Staff

The programme typically has dedicated technical and administrative staff, including programme coordinators, academic advisors, and administrative assistants. Technical staff include IT support personnel, lab assistants, and other support staff relevant to the specific programme requirements.

Administrative and technical staff undergo training sessions and workshops to familiarize themselves with programme requirements, university policies, and procedures. KNUST provides Continuous Professional Development (CPD) and skills development training to its staff to enhance their competencies in areas such as student advising, academic regulations, and technology usage. This training is provided through university and faculty-organized programmes, such as summer schools at the beginning of each academic year, external workshops, conferences, or online courses.

Overall, there are ten administrative and technical staff members supporting the programme.

By providing a diverse range of experienced teaching staff and comprehensive administrative and technical support, KNUST states to ensure a high-quality learning environment that promotes student success and professional development.

Experts' evaluation

Based on the observations and interactions during the on-site visit, it is evident that the teaching staff and academic supervisory staff at ACETRECK significantly contribute to the overall quality of the programmes under review. The teaching staff at KNUST comprises a diverse mix of professors, senior lecturers, and lecturers from various faculties, including the College of Engineering, College of Arts and Built Environment, College of Science, and College of Humanities and Social Sciences. This multidisciplinary composition ensures that students benefit from a wide range of academic perspectives and research interests.

The faculty's engagement in cutting-edge research across fields such as transport economics, sustainable transport systems, and urban public transport provides students with access to the latest developments and insights in their areas of study. The commitment to academic support is evident through the regular office hours, email correspondence, and feedback mechanisms maintained by the teaching staff. This accessibility facilitates an environment where students can seek clarification, discuss academic concerns, and receive guidance on research projects.

The presence of visiting and adjunct professors from renowned institutions in Ghana and abroad enhances the quality of instruction and offers students a global perspective. The inclusion of seasoned practitioners and researchers from various industries, such as the CSIR-Building and Road Research Institute (BRRI) and the Ministry of Roads and Highways, bridges the gap between academic theory and practical application, enriching the learning experience.

The programme is supported by a dedicated team of ten administrative and technical staff members, including programme coordinators, academic advisors, and administrative assistants. This team ensures the smooth operation of the programme and provides essential support to both students and faculty. The technical staff, including IT support personnel and lab assistants, play a crucial role in maintaining the technological infrastructure and laboratory resources, which are vital for the hands-on aspects of the programmes.

KNUST places a strong emphasis on the continuous professional development (CPD) of its staff. Through university and faculty-organized programmes such as summer schools, external workshops, conferences, and online courses, both academic and administrative staff are encouraged to enhance their skills and knowledge. This ongoing training ensures that staff remain current with university policies, academic regulations, and technological advancements, thereby improving their ability to support students effectively.

The programme's collaboration with industry experts and researchers from various sectors significantly enriches the academic environment. These connections provide students with valuable insights into real-world applications of their studies and foster opportunities for internships, research projects, and employment. The diverse expertise of the teaching staff, combined with industry connections, creates a dynamic and engaging learning environment that prepares students for professional success.

Conclusion

The criterion is fulfilled.

6. Learning resources and student support / Support and research environment

Bachelor's/Master's degree

Appropriate facilities and resources are available for learning and teaching activities.

Guidance and support is available for students which includes advice on achieving a successful completion of their studies.

[ESG 1.6]

Doctoral degree

Guidance and support are available for students which include advice on achieving a successful completion of their studies.

Appropriate facilities and resources are available for learning and research activities.

[ESG 1.6]

Description

Learning resources

Teaching and Administrative Facilities

It is stated that the programmes have dedicated classrooms and offices for staff and programme administration. Additionally, there is a dedicated learning commons, as well as facilities available at the College of Engineering. It is stated that, until more classrooms are built, graduate students of the Regional Transport Research and Education Centre Kumasi (TRECK) have access to facilities at the KNUST College of Engineering and the KNUST School of Business.

Specific details, as outlined in the SER, are as follows:

Classrooms: The university has 27 classrooms equipped with 16 fixed projectors, 16 mobile projectors, 5 PA systems, 10 air conditioners, and 10 movable microphones. Classes for physically challenged students are held on the basement floor, with accessible school bus transport and assistive technology available. Safety measures include fire extinguishers, fire alert alarm systems, UPS, and dustbins.

The university offers a variety of classrooms, ranging from small rooms to large lecture halls and auditoriums, to cater to different class sizes in each college. Due to large student numbers, the University has established a committee to oversee the sharing of classroom facilities across various colleges for lecture and exam timetables. TRECK has specialized classrooms designated for its students and is in the process of constructing a TRECK Complex, which will include classrooms, research commons, ICT labs, offices, and an auditorium.

Staff Offices: There are 31 administrative and 29 academic staff offices equipped with 40 desktop computers, 40 printers, 40 office desks, 40 bookshelves, and 40 swivel chairs, along with 80 non-swivel chairs. Safety measures include fire extinguishers, fire alert alarm systems, UPS, and dustbins.

Laboratories: The university features a Central Laboratory furnished with state-of-the-art equipment for both teaching and research purposes. Additionally, the College of Engineering has dedicated Highway and Transportation Engineering Laboratories. Following recent surveys indicating the need for enhanced laboratory resources, the University Management has undertaken the construction of a new, larger central laboratory.

Libraries: The Prempeh II Library is the main university library, managing all library operations and providing access to a wealth of online resources, including subscribed journals and e-books. It houses a dedicated Postgraduate Student Learning Centre for individual and group learning. Special services offered by the library include research assistance and interlibrary loan. A new Library Mall is under construction to improve services and increase learning areas for student discussions and group work.

Conference Room: The university has 1 conference room equipped with 1 fixed projector, 1 conference table, and 30 conference chairs. Safety measures include fire alert alarm systems.

Sanitary Rooms: Adequate toilet facilities are available in KNUST buildings, with fire alert alarm systems and dustbins for safety.

Auditorium: The university has 1 auditorium that seats 1,500 people, equipped with fire extinguishers, fire alert alarm systems, and multiple exits for safety.

E-Learning Centre: The university's e-learning centre, guided by the E-Learning Policy, integrates technology and education to enhance learning experiences. The platform provides students with easy access to course materials, quizzes, and interaction with lecturers and classmates. Services include online teaching and learning, video conferencing, proctor services, webinar series, podcasts, and e-counselling.

By providing comprehensive teaching, administrative, and learning resources, KNUST ensures a high-quality environment that promotes student success and professional development.

Other Equipment: The university has 1 bus, 1 pickup, 1 generator (550KVA), 1 audio mixer and microphone system, and 4 large auditorium speakers.

Student support

The Directorate of Students Affairs (DoSA) at KNUST is dedicated to providing students with the necessary support and services to ensure their well-being and success during their time at the university. These services encompass a wide range of support mechanisms designed to cater to the diverse needs of students.

Student Guidance and Counselling

The Student Guidance and Counselling Unit at KNUST has a team of experienced counsellors who offer confidential counselling services to students. Each college is assigned two counselling staff members who provide counselling services at the college level. The unit also trains staff members as "Skilled Helpers" who can identify students needing counselling help and refer them to professionals. Additionally, the counselling unit coordinates activities of student-led peer counselling groups. Academic advisors assist students in course selection, academic planning, and navigating university policies. Information about advisory services is communicated through orientation sessions, department websites, student handbooks, and posters around campus.

Exchange/International Students

The International Student Affairs unit ensures that exchange and international students are well-integrated into KNUST. They provide support and assistance in areas such as immigration and visa issues, housing, cultural adjustment, pre-arrival information, orientation sessions tailored to international students, and access to international student advisors. Information about support services for exchange and international students is available through the university's international office, website, and orientation materials.

Student Housing and Residence Life

KNUST offers on-campus housing with six traditional halls reserved for first-year undergraduate students and eight hostels for continuing and graduate students. The DoSA coordinates the allocation of students to the main halls and hostels. For students residing in private hostel facilities off-campus, the DoSA appoints off-campus 'hall masters' to oversee their welfare. Additionally, TRECK operates a dedicated hostel capable of accommodating most of its students.

Student Funding

TRECK provides various forms of student funding, including tuition waivers, free student-type accommodation, monthly stipends, and research grants. These funds are competitive and support a limited number of students, offering either partial or full funding. In addition to TRECK funding, KNUST provides various scholarships for students who require financial assistance, including the MasterCard Foundation Scholarship, Ghana National Petroleum Corporation's Scholarship, Edu Fondazione Scholarship, Mark Foundation Scholarship, Educational Pathways International Scholarship, and the Graduate Student Association's bursaries. Students can also access the nationally managed student loan scheme, and various academic units regularly advertise grants to support postgraduate studies.

Information and Communication Technology (ICT)

The University's Information and Communication Technology Services (UITS) provides students with free access to WIFI in classrooms and several hotspots on campus. Upon admission, students receive a SIM card providing free data and call credits monthly. KNUST AIM (Aim App), a mobile application, offers a management service for personalized student records and a platform for paying fees. The KNUST Help Desk provides support services to all students and staff requiring ICT assistance from UITS.

Student Health

The University's Health Directorate manages the student clinic, which provides outpatient services for students. For health conditions requiring admission or specialist services, the University Hospital is available.

Support for Physically Challenged Students

DoSA provides support to students with physical disabilities through the Awareness Programme for Physically Challenged Students. Students are required to inform the Directorate about their condition. Based on their needs, the Office assists them in obtaining campus-based accommodations, informs the academic sections of the University to arrange classes and exams to suit their needs, and provides funding where necessary. The University's Disability Policy outlines specific support for students with disabilities.

Career Services Centre

The Career Services Centre provides students with various training and guidance to enhance their employability. It offers services such as CV preparation, job interview coaching, and placement for industrial attachment in collaboration with the Industrial Liaison Committee to improve students' preparedness for careers.

Student Information and Public Availability

Information about the study programs is disseminated through various channels, including the university website, official social media accounts, brochures, and information sessions. Relevant details such as programme structure, course offerings, admission requirements, and contact information are made publicly available to students via the university's official communication channels and websites.

Orientation and Introductory Events

Orientation events are organized at the beginning of each academic term to welcome new students and familiarize them with the programme structure, campus facilities, academic policies, security, health, and other support services available. Introductory events may include campus tours, meet-and-greet sessions with faculty and staff, workshops on academic skills, and networking opportunities with fellow students.

Experts' evaluation

The experts testify that the educational infrastructure for the Master's and PhD programmes at the Regional Transport Research and Education Centre Kumasi (TRECK) is robust and comprehensive. KNUST demonstrates a clear commitment to providing a conducive learning environment through its dedicated classrooms, staff offices, and additional facilities at the College of Engineering. The classrooms are well-equipped with essential technological tools, ensuring effective teaching and learning experiences. The laboratory resources, observed during the on-site visit, are notable, featuring equipment that supports both teaching and research, and the construction of a new central laboratory highlights a proactive approach to addressing future needs. However, a detailed list of all available resources should be provided to ensure optimal understanding and utilisation by students and staff, especially as the ACETRECK programmes are set to move to a new building soon. This transition presents an excellent opportunity to catalogue and communicate the resources available, ensuring that students and staff can make full use of the facilities from the outset. Currently, the inability to

fully assess the status quo due to the pending move to the new building highlights the need for a comprehensive inventory (**Finding 21**).

The library services, with the two libraries, provide extensive resources and dedicated learning areas, reinforcing the institution's commitment to academic support. For Master's and PhD programmes, these libraries offer access to a substantial collection of academic journals, e-books, and research databases that are essential for advanced study and research. The dedicated Postgraduate Student Learning Centre within the library offers a focused environment tailored to the needs of graduate students for detailed research and study. Additional facilities, such as the conference room, sanitary rooms, auditorium, and E-Learning Centre, further enhance the overall educational infrastructure.

Based on student feedback, it can be stated that the Directorate of Students Affairs (DoSA) at KNUST demonstrates a strong commitment to student support, offering a wide range of services designed to cater to diverse student needs. The Student Guidance and Counselling Unit, with experienced counsellors and academic advisors, ensures that students receive comprehensive support in both personal and academic matters. The presence of peer counselling groups further bolsters this support system. The support for exchange and international students is commendable, with services covering immigration issues, housing, cultural adjustment, and orientation sessions tailored specifically for these students. The International Student Affairs unit ensures that international students are well-integrated into the university community. KNUST provides on-campus housing with traditional halls for first-year undergraduates and hostels for continuing and graduate students. The coordination by DoSA, including the appointment of off-campus 'hall masters', ensures that all students, regardless of residence location, receive adequate support and oversight. TRECK and KNUST offer various funding options, including tuition waivers, stipends, research grants, and scholarships, such as the MasterCard Foundation Scholarship and Ghana National Petroleum Corporation's Scholarship. This financial support is crucial in enabling students to focus on their studies without the burden of financial constraints. However, there should be a clarification of the procedure and criteria for scholarship allocation to ensure transparency and fairness, which will help students understand the selection process and the specific qualifications required for each scholarship (**Finding 22**).

The university's ICT services are extensive, with free WIFI access, a mobile app for managing student records, and an ICT help desk. The provision of SIM cards with free data and call credits is a notable initiative that enhances students' connectivity and access to resources. The student clinic and University Hospital provide essential health services, ensuring that students have access to medical care when needed. Support for physically challenged students is particularly strong, with tailored accommodations, funding, and a comprehensive Disability Policy. The Career Services Centre offers valuable services to enhance students' employability, including CV preparation, job interview coaching, and industrial placement opportunities. These services are integral to preparing students for successful careers post-graduation. Information dissemination through the university website, social media, brochures, and information sessions ensures that students are well-informed about study programmes, admission requirements, and available support services. Orientation events at the beginning of each academic term are well-organised, providing new students with crucial information about campus facilities, academic policies, and support services. These events facilitate a smooth transition into university life and foster a sense of community among students.

An area for enhancement is the continuous improvement of the e-learning platform. Given the increasing importance of flexible and accessible learning options, it is crucial to ensure that the e-learning platform is robust and user-friendly. This includes regular updates to the platform, incorporating feedback from students and faculty, and expanding the range of online resources and interactive tools available. Enhancements to the e-learning platform can provide students with a more engaging and effective online learning experience, complementing their in-person coursework and research activities. By integrating advanced features such as interactive simulations, virtual labs, and collaborative project spaces, the e-learning platform can better support

diverse learning styles and facilitate more innovative teaching methods. Ensuring reliable technical support and training for both students and faculty will further maximize the platform's effectiveness and usability (**Finding 23**).

Furthermore, it is recommended to encourage the activation of an ACETRECK Alumni platform. This platform would provide a valuable network for current students and graduates, facilitating mentorship opportunities, professional connections, and knowledge sharing. Alumni can offer insights into career development, industry trends, and potential job opportunities, thereby enriching the professional growth of current students. Additionally, establishing a strong alumni network can enhance the reputation of the programmes and attract prospective students. Engaging alumni in events, seminars, and workshops can create a dynamic community that continuously supports the institution's mission and goals, fostering a sense of belonging and long-term commitment among graduates (**Finding 24**).

Conclusion

The criterion is partially fulfilled.

7. Public information

Bachelor's/Master's degree

Impartial and objective, up-to-date information regarding the programme and its qualifications is published regularly. This published information is appropriate for and available to relevant stakeholders.

[ESG 1.8]

Doctoral degree

Impartial and objective, up-to-date information regarding the programme and its qualifications is published regularly. This published information is appropriate for and available to relevant stakeholders.

[ESG 1.8]

Description

Following the documentation in the SER, TRECK, and KNUST respectively, engages in various activities to attract highly qualified students from Ghana and other parts of the world. In recent years, TRECK has organized short courses and workshops for professionals both within and outside the country. Additionally, TRECK has hosted conferences and facilitated participation for its students and staff in similar activities globally. These events serve as platforms to advertise the programs offered by the Centre.

TRECK's website provides detailed information about its programs and activities to the public. This includes information on programs offered, courses, admission requirements, application procedures, qualifications awarded, and teaching, learning, and assessment procedures. TRECK also utilizes social media platforms, including Facebook, LinkedIn, and Twitter, to share information about its activities and programs with the public and relevant stakeholders.

KNUST has a published process for application and admission to its programs. Prospective students can access information about the university's programs of study, admission requirements, and application procedures from the KNUST website or by contacting the admissions office. Updated annually, this information includes admission requirements, available programs, deadlines, and other relevant details. Prospective students can apply online or download and complete the application form and submit it via the post office, where the university retrieves the completed forms. Applicants must provide their academic information, personal statements, and other supporting documents as part of the application process. The admissions office reviews the applications and invites shortlisted candidates for an interview if necessary. Successful candidates receive

an offer of admission and must formally accept the programme and pay the approved fees to secure their place.

Prospective Students

Information tailored for prospective students includes details on how to apply, guidelines for international applicants, graduate admissions, and postgraduate entry requirements. The admission process is guided by the Admissions Policy, and there is an online fresher's guide that covers accommodation, registration guidelines, orientation, medical examination, campus facilities, campus security, and more.

University Relations Office

The University Relations Office (URO) promotes KNUST's brand image and maintains positive relationships with stakeholders, including students, faculty, alumni, and the wider community. The office coordinates all events, ceremonies, programs, and other public relations activities of the University. Information about the university's vision, mission, core values, and overall strategies is published on the university website. The university engages with stakeholders via its website and various social media channels, including Facebook, Twitter, Instagram, and YouTube, providing information about the university's programs of study, research activities, events, and other news, and offering a platform for interaction and feedback.

Tailored Information for Different Stakeholders

Students: At TRECK, KNUST, communication with students is prioritized to foster a supportive learning environment. WhatsApp groups are formed for each year group at the outset of the programme, serving as primary channels for information dissemination. If a student is not part of their designated WhatsApp group, they are encouraged to notify their Class Representative to ensure they receive necessary updates. The Center also maintains a database of student information, including email addresses, for important announcements and academic updates.

Faculty/Staff: Effective communication among faculty and staff is facilitated through email correspondence and WhatsApp platforms. These channels allow for swift communication regarding departmental announcements, meeting schedules, and other pertinent matters. Memos may be distributed for more formal or time-sensitive communications.

Alumni: TRECK maintains strong ties with its alumni community through a comprehensive database of email and contact addresses. In addition to WhatsApp groups established for each year group, a dedicated platform for alumni shares updates, event information, job opportunities, and other relevant content. This platform enables ongoing engagement, networking, and contributions to the Center's success.

Industry: The Centre prioritizes communication with industry partners through email correspondence for updates, invitations to participate in programs or events, and for formal communications, such as official invitations or detailed reports, hand-delivered letters may be used.

Public: TRECK engages with the public through social media platforms and its website, providing updates on research projects, upcoming events, and transportation sector news. This approach ensures transparency and community engagement.

Published Information Tailored to Stakeholder Needs

Potential Students: Information includes academic programs, admission requirements, faculty profiles, student support services, and campus facilities.

Labor Market: TRECK publishes information related to industry partnerships, research projects, academic conferences, workshops, professional short courses, and skill development programs aligned with industry needs.

Foreign Students: Information includes international student admissions, visa requirements, English language proficiency, cultural integration resources, and support services. The website also offers insights into student life in Ghana and provides resources for adjusting to a new academic and cultural environment.

Foreign Recognition Bodies: TRECK publishes information about accreditation status, academic partnerships with international institutions, programs aligned with global standards, and achievements or accolades received by the centre or its faculty members.

Assurance of Factual Correctness

At TRECK, ensuring the accuracy and integrity of information shared with the public is of utmost importance. Before dissemination, content undergoes a review process involving staff members and the Director of the centre. This collaborative review process ensures high standards of accuracy and reliability in communications, instilling confidence among stakeholders.

Procedures for Regular Information Updates

A dedicated content manager oversees the process of maintaining an up-to-date website, reflecting the latest developments, events, and other relevant information. The content manager collaborates with staff, faculty, and other stakeholders to gather and verify information, ensuring that updates align with the Center's objectives and accurately represent its activities. Regular reviews of the website's content are conducted to identify areas for improvement, ensuring that information remains current and relevant. This structured approach ensures that TRECK's website serves as a valuable resource for disseminating information and promoting its mission and goals.

Experts' evaluation

Based on the assessment, it can be stated that the public information strategies employed by ACETRECK and KNUST demonstrate a structured framework for engaging various stakeholders and disseminating relevant information.

ACETRECK and KNUST utilise a diverse range of communication platforms, including dedicated websites, social media channels, and messenger groups, ensuring wide accessibility and engagement with students, faculty, alumni, and the public. The availability of detailed programme information, admission requirements, and application procedures on these platforms facilitates the decision-making process for prospective students.

The institutions demonstrate a commitment to student and faculty engagement. The formation of WhatsApp groups for each student cohort fosters a supportive learning environment and ensures timely dissemination of essential information. Faculty and staff communication is streamlined through email and WhatsApp, promoting efficient information flow regarding departmental updates and meetings.

The provision of stakeholder-specific information reflects a structured approach to public engagement. The University Relations Office (URO) at KNUST promotes the university's brand and maintains relationships with various stakeholders through coordinated events and social media interaction. This office disseminates information about the university's vision, mission, core values, and overall strategies.

Quality assurance and regular updates are strengths of TRECK's public information strategy. The collaborative review process involving staff and the Director ensures the accuracy and integrity of the information shared. Additionally, a dedicated content manager oversees the regular update of the website, ensuring that the information remains current and relevant.

However, certain areas require improvement. The student handbook needs regular updates to include current programme titles, course overviews, detailed course descriptions, and the weekly module approach. This will provide students with comprehensive information about their academic journey. Furthermore, there is a need for a more accurate and consistent dissemination strategy that caters to an international audience, ensuring that all communications are globally understandable (**Finding 25**).

The publication of all relevant regulations and policies in an updated version on the homepage is crucial for transparency. This will aid prospective students and other stakeholders in understanding the university's operational standards and expectations. Outlining the rationale for individual programmes, particularly in relation to industry needs, will enhance the perceived quality of the curriculum. Clearly linking this information to the main homepage and the ACETRECK homepage will make it easily accessible. Clarification on the relevance of the programmes offered will help prospective students understand the practical and professional benefits of enrolling (**Finding 26**).

Additionally, showcasing success stories of alumni can serve as role models and motivators for prospective and current students (**Finding 27**). Highlighting these achievements on the website and social media can enhance the Centre's appeal and credibility. The experts believe that showcasing alumni success stories is a multifaceted strategy that will support the institution's goals in motivation, credibility, engagement, networking, and marketing. By highlighting achievements of alumni, the institution can create a more compelling and supportive environment for both prospective and current students, ultimately contributing to the overall success and reputation of the educational programmes.

Conclusion

The criterion is partially fulfilled.

V. Commendations and Findings

Commendations:

- KNUST's inclusive approach to involving a wide variety of stakeholders, including students, teachers, and alumni, in the preparation of quality assurance processes is highly commendable, fostering a responsive and adaptive learning environment.
- TRECK's efforts on emphasizing on student-centred learning is underpinned by various stakeholders.
- A strong commitment to student support, offering a wide range of services that cater to diverse student needs, with good support for exchange and international students.

Findings:

10. The ACETRECK has to reflect on providing the bigger picture for the relevance to the transport sector in Africa, ensuring that the result is clearly reflected in the individual programme intended learning outcomes, by:
 - a. Integrating conceptually intermodal transport solutions for Africa into the Centre's programme rationales, and
 - b. Addressing societal mobility patterns to enhance the transport sector in Africa.
11. ACETRECK should consider to add a part-time option to its programmes to increase accessibility and inclusivity for students
12. It is suggested to refine the titles of the specialisations for the Master's programme "Transport Systems" to "Infrastructure Engineering" and "Urban Transport Operations" for greater clarity and consistency.
13. Clarification of the intended learning outcomes on the programme level between the MSc and MPhil programme "Transport Systems" is necessary to distinguish the MSc's focus on practical skills for the transport industry and the MPhil's emphasis on research.
14. It is highly recommended to introduce a course on freight logistics and supply chain management to address logistical challenges and foster economic growth in the Master's programme "Transport Systems".
15. It is necessary to make the "Transport and Society" course mandatory and extend it to provide a comprehensive understanding of social aspects in transport systems within the Master's programme "Transport Systems".
16. There is a need to incorporate ethical considerations and sustainability into the programme's intended learning outcomes for the Master's programme "Transport Leadership".
17. It is recommended to enhance the curriculum for the Master's programme "Transport Leadership" by developing a clearer roadmap that demonstrates the progression from foundational knowledge to advanced leadership skills, ensuring courses interrelate effectively to build comprehensive leadership competencies.
18. It is recommended to integrate case studies and practical examples from across the African continent into the curriculum for the Master's programme "Transport Leadership".
19. It is mandatory to clearly delineate the specific duties and responsibilities of the QA board in respect of ACETRECK to ensure robust coordination and a cohesive approach to maintaining and enhancing educational quality.
20. It is suggested to increase the frequency and depth of interactions with industry stakeholders.
21. It is recommended to reconsider the suitability of the modular (Block) approach for complex subjects and explore more flexible and extended teaching methods to better support student learning and well-being.
22. It is suggested to incorporate more interdisciplinary and cross-sectoral projects, such as those involving "Transport & Society," early in the PhD programme.

23. It is recommended to increase PhD students' involvement in teaching to provide them with valuable teaching experience.
24. It is suggested to reconsider the current re-sit regulations for ACETRECK to allow for more flexible remediation options.
25. It is suggested to refine the assessment strategy for the Master's programme "Transport Leadership" by incorporating leadership-specific projects, peer evaluations, and reflective essays to better measure leadership qualities.
26. It is recommended to involve external examiners at earlier stages, particularly in the approval of examination questions.
27. The experts suggest strengthening the strategy to attract more female students by implementing targeted outreach and support initiatives.
28. It is mandatory to establish clearer transition requirements from M.Sc. "Transport systems" to the PhD programme "Transport Systems".
29. It is recommended to address the lack of established procedures for recognizing competencies achieved at partner institutions to fully capitalize on partnerships.
30. A detailed list of all available resources must be provided to ensure optimal understanding and utilisation by students and staff, especially in light of the upcoming move to a new building.
31. It is suggested to clarify the procedure and criteria for scholarship allocation.
32. It is recommended to continuously improve the e-learning platform by incorporating feedback, expanding online resources, and integrating advanced features to provide a more engaging and effective learning experience.
33. It is important to encourage the activation of an ACETRECK Alumni platform to provide a valuable network for mentorship, professional connections, and knowledge sharing.
34. The student handbook must be regularly updated to include current programme titles, course overviews, detailed course descriptions, and the weekly module approach, and there must be a more accurate and consistent dissemination strategy that caters to an international audience.
35. It is mandatory to publish all relevant regulations and policies in an updated version on the homepage and outline the rationale for individual programmes, clearly linking this information to both the main and ACETRECK homepages for enhanced transparency and accessibility.
36. It is recommended to showcase alumni success stories on the website and social media to serve as role models for prospective and current students.