



Royal Academy
of Engineering



Institution of Engineers Rwanda

“I began the journey of engineering at school but after graduating it was hard to face the world of professional engineering. I knocked on so many doors and they didn't open. But this internship opened that door by giving experience, teaching practical skills and getting us professional skills. It was important to continue the journey of engineering.”

Telecommunications Intern
2019

As Rwanda maintains impressive growth momentum, economic expansion is propelled by different sectors, from agriculture to technology. Helping facilitate this is infrastructure, of which a quarter of the country's budget is allocated to. Maintaining this growth trajectory requires fit-for-purpose engineers. Recognising the chasm between theoretical and practical knowledge of graduate engineers across the country, the Institution of Engineers Rwanda (IER) is making efforts to resolve the issue.



In 2017, the Royal Academy of Engineering's Africa Catalyst programme, supported by the UK government's Global Challenges Research Fund (GCRF), funded a two-year project to strengthen the future of Rwanda's engineering capacity by enhancing practical skills of graduate engineers through industry placements and exposure to working environments.

Engineering syllabi across the country prioritise development of theoretical knowledge, which is strong among graduates, while universities often lack the capacity to balance that with practical application. With the majority of graduates facing difficulty in converting this knowledge into necessary skills, IER leveraged industry networks, connecting 100 graduates with industry placement opportunities, between 2017 and 2019. Government departments advised IER on ongoing projects, leading it to establish the most suitable sites for work placements with engineering companies, according to project size and lifecycle. Before placements begun, IER visited projects to identify the most appropriate mentors to guide graduates through their internships.

On average, the interns had each applied to nine jobs with no success,

with 84% citing a lack of experience as the primary hindrance to securing a job opportunity. During their three-month placement, they all noted an improvement in their practical knowledge, which was the main reason they had applied for the internships. This proved especially helpful to the subsequent job application process, which integrates interviews or tests related to onsite activity or practical skills. Working in an environment providing first-hand insight into how engineering theories translate from pages of textbooks to real-life scenarios not only strengthened that component but reinforced what was taught in their university labs, as all graduates left with better theoretical understanding. Such was the success of the programme, 40% of interns would have been given a permanent role if it were up to the mentors.

IER co-ordinators developed the programme to reflect the reality facing the prospective engineering workforce. This involved a commitment to promoting diversity and inclusion among applicants. In 2018, 5% of applicants were women, which jumped to 25% the subsequent year, with proportionate representation among successful applicants. Beyond that, with an eye on establishing programme

longevity, IER captured the individual experiences of graduates during each placement. Those insights help reshape the programmes, ensuring they deliver the most fulfilling and effective experiences.

The GCRF Africa Catalyst programme aims to strengthen professional engineering bodies in sub-Saharan Africa so that they can effectively promote the profession, share best practice and increase local engineering capacity, to help drive development.

"We learned from the experiences of other engineers—when you are a fresh graduate you don't know anyone who can help you, but with this internship you can meet people with different backgrounds who can help you, and they give you a chance to show them you are good." Engineering intern, 2019