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ARUSHA TECHNICAL COLLEGE

Graduate Tracer Study Report, June 2026

Prepared by:

Arusha Technical College

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Abbreviations and Acronyms

ATC	Arusha Technical College
CBET	Competence-Based Education and Training
DASS	Department of Applied Sciences and Social Studies
EBE	Electrical and Biomedical Engineering
EE	Electrical Engineering
GTZ	German Foundation for Technical Co-operation
ICT	Information and Communication Technology
ILO	International Labour Organization
IPT	Industrial Practical Training
KRETRC	Kikuletwa Renewable Energy Training and Research Centre
NACTVET	National Council for Technical and Vocational Education and Training
NTA	National Technical Awards
NVA	National Vocational Awards
SPSS	Statistical Package for Social Sciences
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEVOC	International Centre for Technical and Vocational Education and Training (UNESCO-UNEVOC)
URT	United Republic of Tanzania

Executive Summary

ES1: Arusha Technical College (ATC) conducted a Graduate Tracer Study to assess the employability, labour market relevance, and satisfaction of graduates from long-term TVET programmes completed in December 2024. This study supports the College's quality assurance by evaluating how well CBET programmes prepare students for employment, entrepreneurship, and further study. It focused on graduates' employment status six months after graduation, the alignment of training with market needs, and graduate satisfaction. The results inform curriculum updates, industry partnerships, planning, and improvements in technical education.

ES2: The study employed a descriptive survey research design targeting all 1,004 graduates from 21 academic programmes offered between NTA Levels 4 and 8. Using a census approach, data were successfully collected from 726 graduates, representing a response rate of 72.3%, which exceeded the minimum statistical requirement for reliable analysis. Data were gathered between January and March 2026 through structured online and printed questionnaires distributed via institutional email, alumni networks, social media platforms, departmental coordinators, and the College website. Quantitative data were analysed using Microsoft Excel and IBM SPSS Statistics Version 27, while qualitative responses were analysed through thematic content analysis. The study adhered to ethical principles of informed consent, confidentiality, voluntary participation, and anonymity, although challenges such as outdated graduate contact information, limited alumni network coverage, and time constraints were encountered.

ES3: The findings indicate positive labour market outcomes for ATC graduates. Most respondents were young adults, although male graduates continued to outnumber females across all departments. Employment rates improved beyond the first six months after graduation, with Transportation Engineering recording the strongest performance, while ICT graduates experienced relatively slower labour market absorption. Industrial Practical Training (IPT) emerged as the primary pathway to employment, and most employed graduates worked in fields related to their training. Self-employment and further

education also provided important pathways for graduates' career development.

ES4: Graduates expressed overall satisfaction with their training, particularly Industrial Practical Training, laboratory and workshop practice, and specialized technical courses. However, they highlighted the need to improve practical training facilities, modernize equipment and technologies, strengthen industry partnerships, enhance teaching quality, expand career support services, and improve digital learning infrastructure.

ES5: Overall, the study concludes that ATC programmes remain relevant to labour market needs and continue to produce employable graduates. It recommends increased investment in modern training facilities, stronger industry collaboration, curriculum enhancement, improved entrepreneurship education, expanded career support services, and greater efforts to promote gender equity and staff industrial exposure to further enhance graduate employability and institutional performance.

CHAPTER ONE

INTRODUCTION

1.1 Background of Arusha Technical College

The College was established in 1978 through an agreement of technical cooperation between the Government of the United Republic of Tanzania and the Government of the Federal Republic of Germany (FRG), which was also known as “West Germany”. The German Foundation for Technical Co-operation (GTZ) was given the mandate to build and equip the college with the necessary facilities for habitation and training. By that time, the college was known by the name Technical College Arusha (TCA). The name Arusha Technical College (ATC) came into existence officially in March 2007 when the College was given autonomy through the Arusha Technical College Establishment Order No. 78 of March 2007 under the NACTE Act No. 9 of 1997, which was later revoked and replaced by the ATC Establishment Order GN 302, 2015. The core functions of the College are training, research, and consultancy. The College is registered and accredited by the National Council for Technical and Vocational Education and Training (NACTVET) to train technicians and engineers (NTA’s level 4-8) and artisans (NVA level 1-3) on vocational education programmes.

The College recognises the quality of education as imperative to realizing its vision: “*A society with practical knowledge, skills and attributes for sustainable development*”. In efforts to realize its vision and mission, ATC constantly and systematically monitors and evaluates the implementation of its mandated activities to ensure continuous quality improvement. Graduates’ tracer study is among the tools for monitoring and evaluation.

Since 2018, the College has been conducting graduate tracer studies for all programmes offered. Graduate tracer studies are essential quality assurance and institutional planning tools. They provide systematic evidence on the employment outcomes, career progression, further education, and employer satisfaction of graduates, thereby enabling institutions to assess the relevance, quality, and effectiveness of their training programmes. The findings from tracer studies support curriculum review, strengthen

industry partnerships, inform policy formulation, and ensure that training programmes remain responsive to labour market demands and national development priorities.

1.2 Rationale of Graduate Tracer Study

Tracer studies help evaluate the success, effectiveness, and impact of education and training programmes. They identify strengths and deficits in academic programmes and assess graduates, the labour market, and employment conditions. Tracer studies provide valuable information for stakeholders. They provide feedback from graduates regarding the relevance and quality. The findings enable institutions to revise curricula, mordenize training approaches, and reduce graduate unemployment caused by skills mismatch.

Tracer studies support quality assurance in TVET institutions by providing feedback on graduates' employment status, transition to work, and the applicability of competencies acquired during training to ensure that education and training remain aligned with the demands of labour market. Furthermore, tracer studies serve as important tools for institutional accountability, strategic planning, resource allocation and enhancement of lifelong learning systems.

At ATC, conducting a graduate tracer study is essential to assess the extent to which the College's engineering, science, and technology programmes meet the evolving demands of industry and the labour market in Tanzania and beyond. As a Competence-Based Education and Training (CBET) institution, the College is expected to produce competent graduates with practical, technical, and employability skills relevant to national development priorities and industrial transformation. The tracer study will therefore provide evidence on graduates' employment status, career progression, self-employment potential, relevane of competencies acquired during training to the needs of the labour market. The findings will support curriculum review, improve training delivery and resource allocation, and enhance quality assurance practices to ensure that the College continues to produce skilled and competitive graduates capable of contributing effectively to socio-economic development.

1.3 Objectives

1.3.1 General objective

The general objective of this tracer study is to evaluate the employability status of graduates from TVET programmes offered at the College.

1.3.2 Specific Objectives

Specifically, this study aims to:

(i) Assess graduates' employment rates six (6) months after graduation.

(ii) To evaluate the relevance of training programmes to the labour market.

(iii) To evaluate overall satisfaction levels of graduates with their educational and training experiences.

1.4 Scope

This tracer study focused on graduates of long-term TVET programs offered at the College, as summarized in Table 1. It specifically targeted graduates from the December 2024 graduation ceremony and their employers.

Table 1. Programmes for the graduates of December 2024

S/N	Programme	NTA Level
1	Auto Electric and Electronics Engineering	4-6
2	Automotive Engineering	4-6
3	Civil and Highway Engineering	4-8
4	Civil and Irrigation Engineering	4-8
5	Civil Engineering	4-8
6	Computer Science	4-8
7	Electrical and Biomedical Engineering	4-8
8	Electrical and Hydropower Engineering	4-6
9	Electrical and Solar PV System Engineering	4-6
10	Electrical and Wind Energy Systems Engineering	4-6
11	Electrical Engineering	4-6
12	Electronics and Telecommunication Engineering	4-6
13	Heavy Duty Equipment Engineering	4-6
14	Information Technology	4-8
15	Laboratory Science and Technology	4-6
16	Mechanical and Bio-energy Engineering	4-6
17	Mechanical Engineering	4-8
18	Pipe Works, Oil and Gas Engineering	4-6
19	Electrical and Automation Engineering	7-8
20	Mechatronics and Materials Engineering	7-8

1.5 Limitations of the Study

This study was conducted six (6) months after graduation for a duration of twelve (12) months from July 2025 to June 2026. At this duration, many graduates were still transitioning into the workforce, especially in developing countries, including Tanzania. UNESCO-UNEVOC (2013) emphasises that TVET graduates often take more time to find

stable or relevant employment, especially in developing economies.

Contacting graduates after only six months faced some difficulties due to outdated contact information. The College used the institutional database and alumni networks to increase the response rates and reliability of the tracer study.

CHAPTER TWO

METHODOLOGY

2.1 Research Design

This tracer study employed a descriptive survey research design to gather data on the employment status, competencies, and educational experiences of graduates. According to Creswell (2014), a descriptive survey design is used to obtain information that describes existing phenomena by asking individuals about their perceptions, behaviours, or outcomes. In tracer studies, this design enables institutions to describe:

- Employment status of graduates
- Relevance of training
- Graduate satisfaction level

Also, this design facilitates the collection of uniform data from large populations at relatively low cost and time (Millington, 2001). Results of the descriptive design inform improvement in training and assessment, and curriculum review.

2.2 Population and Sample

The population of this tracer study comprised 1004 graduates from the ATC who completed their studies in the academic year 2022/2023, across 20 academic programmes from NTA levels 4-8. This included graduates from all academic departments, reflecting the institution's multidisciplinary academic profile.

This study employed census sampling techniques whereby all 1004 graduates were targeted, recognizing the value of comprehensive feedback for institutional quality assurance and curriculum development.

Ultimately, the study collected data from 726 graduates, achieving a response rate of 72.3%, which exceeds the minimum requirement for statistical analysis according to Yamane's Formula. The minimum sample size for the population of 1004 graduates using Yamane's Formula at a 95% confidence level and a 5% margin of error (e = 0.05) was approximately 287 graduates; hence, the response rate was statistically significant.

2.3 Data Collection Instruments and Procedures

Data collection for this tracer study was conducted for the duration of nine months, from

July 2025 to March 2026, utilizing a combination of online and manual methods to enhance the response rate and representativeness across academic disciplines. This approach helped the College to reach a large population of graduates.

A structured online questionnaire with closed-ended and open-ended questions was the primary tool for data collection. The questionnaire was developed using Google Forms, ensuring accessibility and ease of use. It was disseminated through multiple platforms, including:

- Official College email address
- Alumni social media groups (WhatsApp, Facebook)
- Official College website

To complement the online method and minimize non-response bias, especially for graduates with limited internet access, printed questionnaires were distributed through tracer study coordinators from each academic department.

To ensure data quality and consistency, the research team conducted:

- A pilot test with 30 graduates to validate the instrument,
- A brief orientation for departmental tracer studies coordinators on how to guide respondents,
- Real-time monitoring of response trends through the online platform dashboard.

In total, 726 responses were collected out of the target sample size of 1004, achieving a response rate of 72.3%, which exceeded the minimum threshold required for statistical analysis.

2.4 Data Analysis

The data collected through the structured questionnaires were analyzed using a combination of quantitative and qualitative techniques to provide a comprehensive understanding of graduate outcomes. This dual approach aligns with internationally recognized best practices in tracer study methodology.

Closed-ended responses were first exported from the Google Forms platform into Microsoft Excel, then cleaned and coded for analysis using IBM SPSS Statistics Version 27. Descriptive statistical methods were applied, including:

- Frequencies and percentages

- Measures of central tendency
- Cross-tabulations
- Charts and graphs for visual interpretation

Open-ended responses, particularly those related to graduate suggestions, perceived skill gaps, and overall satisfaction, were subjected to thematic content analysis. Responses were read iteratively to identify recurring themes, coded manually, and grouped into categories

2.5 Ethical Considerations

The study was guided by principles of voluntary participation, informed consent, confidentiality, and data protection, consistent with international research ethics protocols and best practices observed at the College. The study adhered to ethical considerations as follows:

(a) Before participating in the survey, all graduates and their employers received a clear explanation of the study's objectives, procedures, and their rights as respondents. An informed consent form was embedded in the online and printed questionnaires, stating that participation was voluntary and could be withdrawn at any time without consequences.

(b) To ensure anonymity, no names or identification numbers were requested in the questionnaire. Responses were coded, and all personally identifiable data were excluded from analysis and reporting. Confidentiality was strictly maintained throughout the research process, and data was only accessible to the core tracer study team.

2.6 Limitations of the Study

While this tracer study provides valuable insights into the employment status, skill relevance, and academic experiences of graduates, certain limitations were encountered during the tracer study process. Key limitations include the following:

(a) Outdated contact information. One of the key challenges faced was the inaccuracy or unavailability of up-to-date contact information for some graduates. A significant proportion of the contact details recorded at the time of graduation, particularly

mobile numbers and email addresses, were no longer active. This was addressed by reaching out to known contacts for referral-based updates.

(b) Limited access through alumni social media networks. Despite efforts to leverage alumni social media groups (e.g., WhatsApp, Facebook), not all graduates were active or included in these platforms. To address gaps in alumni social media coverage, the tracer team diversified its communication strategies by using SMS blasts and posting on official College websites.

(c) Time constraints. The study was conducted within a limited time frame and with restricted personnel resources. This constrained the extent of data triangulation, follow-up efforts, and in-depth qualitative validation. The tracer study team prioritized automated data collection tools to address this limitation.

Despite these limitations, the study offers meaningful baseline data for institutional planning, curriculum review, and graduate support services.

CHAPTER THREE

RESULTS AND DISCUSSIONS

3.1 Demographic Information of Respondents

This chapter presents the consolidated results and discussions of the 2024 Graduate Tracer Study conducted across all seven academic departments of the College. The study surveyed graduates from the December 2024 cohort and collected data on demographic characteristics, post-graduation employment outcomes, self-employment activities, further education pathways, labour market competency demands, graduate satisfaction, and recommendations for programme improvement.

A total of 726 graduates participated across the seven departments: Information and Communication Technology (ICT, n=100), Mechanical Engineering (n=84), Transportation Engineering (n=91), Civil Engineering (n=89), Electrical Engineering (n=281), Automotive Engineering (n=32), and the Department of Applied Sciences and Social Studies (DASS, n=49). The findings are presented first at the department level and subsequently synthesized into a college-wide comparative analysis to identify cross-cutting patterns, strengths, and areas for improvement.

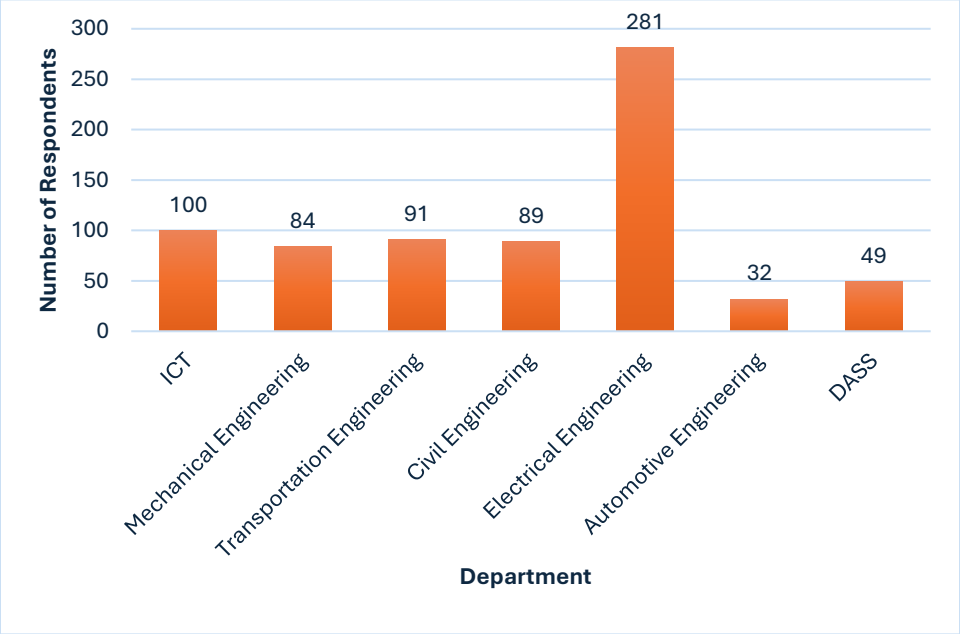

Figure 1. Number of Surveyed Respondents by Department

3.1.1 Respondents by Gender

Across all seven academic departments, male graduates outnumbered female graduates. Male dominance was most pronounced in Automotive Engineering Department (90.6%), Transportation Engineering (85.7%), and Civil Engineering (84.3%). The Electrical Engineering Department had the largest absolute number of female graduates (n=69, 24.6% of 281 respondents). Notably, the ICT Department recorded the highest female participation rate of any engineering or technical department at 30.0%, while the Automotive Engineering Department recorded the lowest at 9.4%. The DASS also exhibited significant male dominance at 77.6%, despite laboratory science being conventionally regarded as more accessible to women than construction or mechanical engineering fields. The tracer study findings align with national and international evidence indicating that female participation in TVET remains significantly lower than that of males in Tanzania. This calls for stronger policy implementation, community sensitization, and institutional reforms to promote gender inclusiveness in TVET systems.

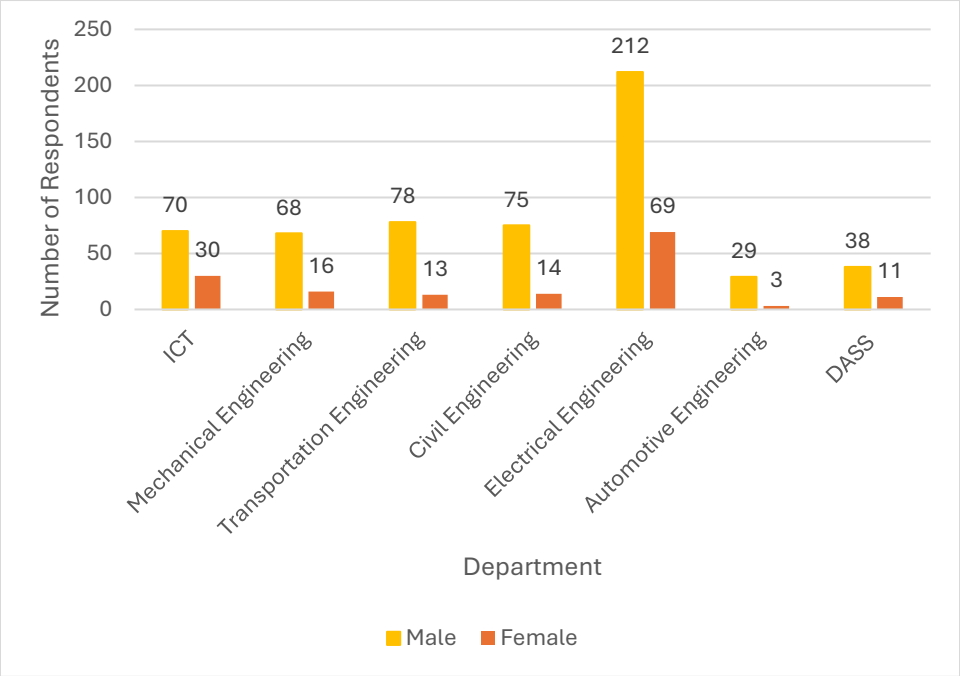

Figure 2. Gender Distribution of Respondents by Department

3.1.2 Respondents by Age

The findings revealed that the majority of graduates across all departments were adults, with the 15–34-year age range accounting for over 93% of total respondents. The Transportation Engineering department had a predominantly degree-level (NTA Level 8) cohort attracting a slightly older profile due to the requirement for prior qualifications. Across departments, graduates aged 35 and above constituted a small but significant minority, representing mature learners who re-entered formal education to upgrade their professional credentials. This trend aligns with Tanzania's national demographic structure, where youth constitute a significant proportion of the labor force (United Republic of Tanzania, 2021).

Table 2. Age Distribution of Respondents by Department

Department	15–24 Yrs n (%)	25–34 Yrs n (%)	35 Yrs+ n (%)
ICT	50 (50.0%)	45 (45.0%)	5 (5.0%)
Mechanical Engineering	28 (33.3%)	54 (64.3%)	2 (2.4%)
Transportation Engineering	6 (6.6%)	77 (84.6%)	8 (8.8%)
Civil Engineering	31 (34.8%)	45 (50.6%)	13 (14.6%)
Electrical Engineering	103 (36.7%)	162 (57.7%)	16 (5.7%)
Automotive Engineering	21 (65.6%)	9 (28.1%)	2 (6.3%)
DASS (Applied Sciences)	29 (59.2%)	17 (34.7%)	3 (6.1%)
College Total	268 (36.9%)	409 (56.3%)	49 (6.8%)

3.1.3 Pre-Enrolment Status of Graduates

Before their enrolment at ATC, a substantial majority of respondents across all departments had completed secondary education and were in a transitional phase awaiting admission to the College. In ICT, 80.0% of graduates had completed secondary school and were awaiting admission, in Mechanical Engineering, 83.3%, in Automotive Engineering, 81.3%, and in Electrical Engineering, 71.5%. Smaller proportions entered from prior employment, volunteering, self-employment, or internship backgrounds. The presence of graduates with prior employment experience is particularly notable in Civil

Engineering and Transportation Engineering, where practical field exposure may have enhanced readiness for professional employment. The predominance of students transitioning directly from secondary school aligns with national trends reported in Tanzanian TVET studies, which highlight that many students view TVET as a viable alternative to university education, particularly when seeking practical skills and faster entry into the labor market (URT, 2021).

Table 3. Pre-enrollment Status of Graduates by Department

Department	n	Secondary School n (%)	Formally Employed n (%)	Self-Employed n (%)	Volunteering n (%)	Internship n (%)
ICT	100	80 (80.0%)	7 (7.0%)	4 (4.0%)	6 (6.0%)	3 (3.0%)
Mechanical Engineering	84	70 (83.3%)	5 (6.0%)	3 (3.6%)	4 (4.8%)	2 (2.4%)
Transportation Engineering	91	41 (45.1%)	25 (27.5%)	9 (9.9%)	8 (8.8%)	8 (8.8%)
Civil Engineering	89	61 (68.5%)	14 (15.7%)	10 (11.2%)	4 (4.5%)	0 (0.0%)
Electrical Engineering	281	201 (71.5%)	16 (5.7%)	50 (17.8%)	14 (5.0%)	0 (0.0%)
Automotive Engineering	32	26 (81.3%)	1 (3.1%)	2 (6.3%)	3 (9.4%)	0 (0.0%)
DASS (Applied Sciences)	49	35 (71.4%)	9 (18.4%)	5 (10.2%)	0 (0.0%)	0 (0.0%)

3.1.4 Respondents by Level of Qualification

The distribution of respondents according to their levels of qualifications varies substantially across departments, reflecting different programmatic structures at the College, starting from NTA level 4 to NTA level 8. Within the ICT Department, the majority of participants earned an Ordinary Diploma (NTA Level 6, n=48, 48.0%), followed by those with a Bachelor's Degree (NTA Level 8, n=29, 29.0%). In the Mechanical Engineering Department, nearly half (n=46, 54.8%) attained qualifications at NTA Level 8, while a significant portion held NTA Level 6 credentials (n=27, 32.1%). The

Transportation Engineering Department was primarily composed of Bachelor's Degree holders (NTA Level 8, n=58, 63.7%), aligning with the department's focus on advanced engineering expertise. Similarly, in the Civil Engineering department, most participants possessed NTA Level 6 qualifications (n=75, 84.3%), with the remainder at NTA Level 8 (15.7%). The Automotive Engineering Department was predominantly represented at NTA Level 6 (90.6%), while DASS graduates were chiefly Ordinary Diploma holders in Laboratory Science and Technology. The relatively high share of degree holders suggests increasing vertical mobility and alignment with the national vision for producing competent professionals for the labour market.

Table 4. Distribution of Respondents by NTA Qualification Level Completed and Department

Department	n	NTA 4 n (%)	NTA 5 n (%)	NTA 6 n (%)	NTA 7 n (%)	NTA 8 n (%)
ICT	100	1 (1.0%)	8 (8.0%)	48 (48.0%)	14 (14.0%)	29 (29.0%)
Mechanical Engineering	84	0 (0.0%)	2 (2.4%)	46 (54.8%)	0 (0.0%)	36 (42.9%)
Transportation Engineering	91	0 (0.0%)	2 (2.2%)	31 (34.1%)	0 (0.0%)	58 (63.7%)
Civil Engineering	89	0 (0.0%)	1 (1.1%)	75 (84.3%)	0 (0.0%)	13 (14.6%)
Electrical Engineering	281	0 (0.0%)	0 (0.0%)	171 (60.9%)	10 (3.6%)	100 (35.6%)
Automotive Engineering	32	1 (3.1%)	0 (0.0%)	31 (96.9%)	0 (0.0%)	0 (0.0%)
DASS (Applied Sciences)	49	0 (0.0%)	0 (0.0%)	49 (100.0%)	0 (0.0%)	0 (0.0%)
COLLEGE TOTAL	726	2 (0.3%)	13 (1.8%)	451 (62.1%)	24 (3.3%)	236 (32.5%)

3.2 Employment Status of Graduates

3.2.1 Graduate Employment Rates Six Months After Graduation

The six-month formal employment rate — representing the proportion of graduates who secured formal employment within the first six months of completing their studies — varied considerably across departments. Transportation Engineering recorded the highest six-month formal employment rate at 47.3%, benefiting from strong demand from public infrastructure agencies. Civil Engineering recorded the lowest formal employment

rate at six months (29.2%), reflecting the longer absorption period typical of graduates awaiting government appointment processes. ICT (35.0%), Electrical (34.9%), and Automotive (34.4%) departments had comparable six-month rates.

When combined employment (formal employment plus self-employment) is considered, the picture improves substantially. Transportation Engineering recorded the highest combined rate at 64.8%, followed by Automotive Engineering at 56.3% and DASS at 51.0%, as shown in Table 4. Even in departments with relatively lower formal employment rates at six months, self-employment activity provided a meaningful second pathway into economic participation.

Table 5. Graduate Employment Status Six Months After Graduation by Department

Department	n	Formally Employed	Self-Employed	Combined Rate	Further Studies	Seeking Employment
ICT	100	35 (35.0%)	14 (14.0%)	49.00%	8 (8.0%)	43 (43.0%)
Mechanical Engineering	84	19 (22.6%)	22 (26.2%)	48.80%	26 (31.0%)	17 (20.2%)
Transportation Engineering	91	43 (47.3%)	16 (17.6%)	64.80%	5 (5.5%)	27 (29.6%)
Civil Engineering	89	26 (29.2%)	15 (16.9%)	46.10%	21 (23.6%)	27 (30.3%)
Electrical Engineering	281	98 (34.9%)	60 (21.4%)	56.30%	54 (19.2%)	69 (24.6%)
Automotive Engineering	32	11 (34.4%)	7 (21.9%)	56.30%	7 (21.9%)	7 (21.9%)
DASS	49	12 (24.5%)	13 (26.5%)	51.00%	3 (6.1%)	21 (42.9%)

3.2.2 Graduate Employment Rates Six Months After Graduation by Gender

The analysis of employment status by gender six months after graduation reveals that male graduates achieved substantially higher formal employment rates than female graduates within six months. In contrast, in departments where health, education, and service sector employment play a larger role (ICT and DASS), female graduates either matched or exceeded male formal employment rates within six months. Transportation Engineering demonstrated the starkest gender disparity in employment outcomes of any department, with male graduates achieving a six-month formal employment rate of 52.6% compared to only 15.4% for female graduates as shown in Figure These findings align with scholarly works that highlight persistent gender inequalities in TVET outcomes, driven by sociocultural norms, limited employer confidence in female technical graduates,

and fewer opportunities for women in male-dominated sectors (Mushi & Urassa, 2020)

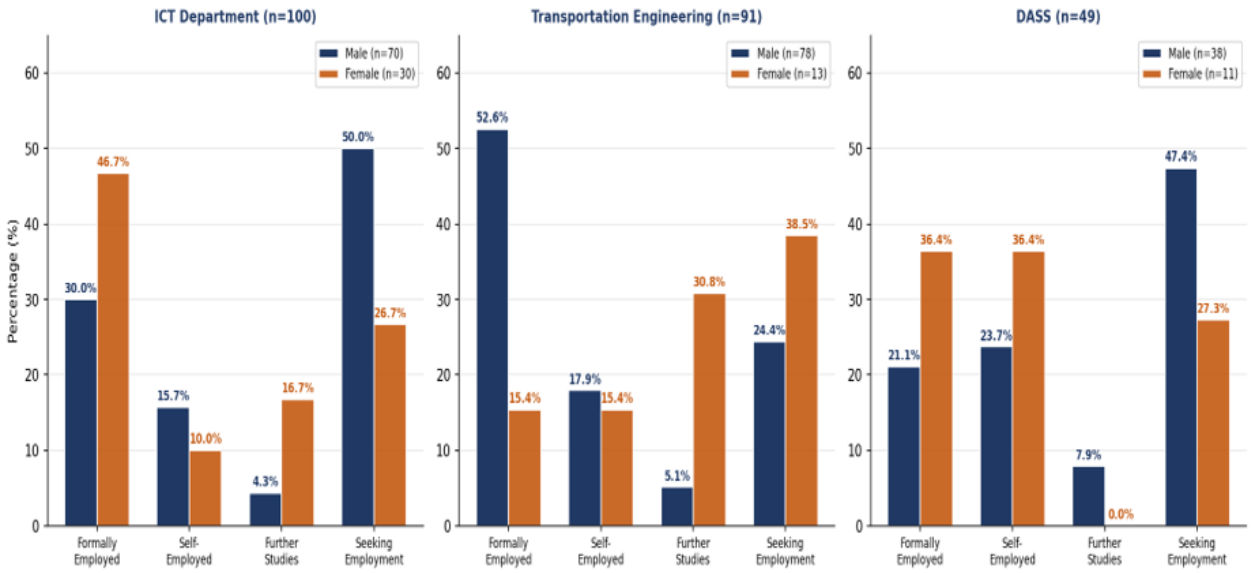

Figure 3. Employment Status Six Months After Graduation by Gender (ICT, Transportation Engineering, and DASS — Departments with Full Gender Data)

3.2.3 Graduate Employment Rate at the Time of Survey

By the time of survey administration, formal employment rates had improved across all departments, demonstrating continued labour market absorption beyond the initial six-month period. The most dramatic improvement was observed in Transportation Engineering, where the formal employment rate rose from 47.3% to 71.4%, and in DASS, where it rose from an estimated 24.5% to 59.2%. Electrical Engineering grew from 34.9% to 44.5%, and Civil Engineering from 29.2% to 39.3%. The ICT Department was the only department where the formal employment rate at time of survey (35.0%) was unchanged from the six-month rate, which is partially explained by the high proportion of graduates (43.0%) who remained actively seeking employment. This finding suggests that while ICT skills are increasingly in demand in Tanzania, the current supply of ICT graduates may be outpacing market absorption capacity in formal employment, particularly for Computer Science graduates at lower NTA levels.

Table 6. Employment Status at the Time of Survey by Department

Department	n	Formally Employed n (%)	Self-Employed n (%)	Combined Rate (%)	Further Studies n (%)	Seeking Employment n (%)
ICT	100	35 (35.0%)	14 (14.0%)	49.0%	8 (8.0%)	43 (43.0%)
Mechanical Engineering	84	31 (36.9%)	14 (16.7%)	53.6%	28 (33.3%)	11 (13.1%)
Transportation Engineering	91	65 (71.4%)	10 (11.0%)	82.4%	9 (9.9%)	9 (9.9%)
Civil Engineering	89	35 (39.3%)	11 (12.4%)	51.7%	20 (22.5%)	23 (25.8%)
Electrical Engineering	281	125 (44.5%)	39 (13.9%)	58.4%	80 (28.5%)	37 (13.2%)
Automotive Engineering	32	13 (40.6%)	6 (18.8%)	59.4%	8 (25.0%)	5 (15.6%)
DASS (Applied Sciences)	49	29 (59.2%)	5 (10.2%)	69.4%	6 (12.2%)	9 (18.4%)

3.2.4 Graduate Employment Rate at the Time of Survey Gender

At survey time, ICT male and female graduates demonstrated near parity in formal employment rates — 34.3% for males and 36.7% for females — compared to a 16.7-percentage-point female advantage at six months. This convergence suggests that male ICT graduates made progress in employment absorption over time, though the overall rate for both genders remains constrained by the competitive ICT labour market. Transportation Engineering continued to demonstrate the most pronounced gender employment gap of any department at survey time. Male graduates achieved a remarkable 79.5% formal employment rate at survey — close to the 80% benchmark for strong TVET employment outcomes — while female graduates recorded 30.8% formal employment. DASS was the only department where female graduates substantially outperformed males in formal employment at survey time: 72.7% for female graduates versus 55.3% for males — a female advantage of 17.4 percentage points as shown in Table 7.

Table 7. Employment Status at Time of Survey by Gender

Department	Gender	n	Formally Employed (%)	Self-Employed (%)	Further Studies (%)	Seeking Employment (%)
ICT	Male (n=70)	70	34.3%	10.0%	11.4%	44.3%
ICT	Female (n=30)	30	36.7%	20.0%	6.7%	36.7%
Transportation Eng.	Male (n=78)	78	79.5%	32.1%	5.1%	0.0%
Transportation Eng.	Female (n=13)	13	30.8%	15.4%	46.2%	7.7%
DASS	Male (n=38)	38	55.3%	7.9%	15.8%	21.1%
DASS	Female (n=11)	11	72.7%	18.2%	0.0%	9.1%

3.2.5 Duration of Job Search

The findings indicate that in ICT, 85.4% of employed graduates found their first job within six months. The Mechanical Engineering Department reported approximately 80.6% placed within six months across its programmes. Transportation Engineering demonstrated the most impressive placement speed, with degree-level graduates achieving near-complete absorption by survey time. Automotive Engineering reported 92.3% of formally employed graduates securing work within the first six months, reflecting strong demand for automotive technicians. DASS graduates reported that 59.2% had formal employment by the time of the survey, an improvement from lower six-month rates, suggesting delayed but effective absorption in health, education, and laboratory service sectors.

Table 8. Duration of Job Search Among Employed Graduates by Department

Department	Employed (n)	0–6 Months n (%)	7–12 Months n (%)	>12 Months n (%)
ICT	41	35 (85.4%)	6 (14.6%)	0 (0.0%)
Mechanical Engineering	31	25 (80.6%)	5 (16.1%)	1 (3.2%)
Transportation Engineering	56	39 (69.6%)	5 (8.9%)	12 (21.4%)
Civil Engineering	40	24 (60.0%)	12 (30.0%)	4 (10.0%)
Electrical Engineering	125	98 (78.4%)	20 (16.0%)	7 (5.6%)
Automotive Engineering	13	12 (92.3%)	0 (0.0%)	1 (7.7%)
DASS	49	32 (65.3%)	8 (16.3%)	9 (18.4%)

3.2.6 Sources of Employment Information Among Employed Graduates

The findings indicate that the internet was the primary source of employment for graduates across most departments, accounting for the largest share of employment in Mechanical Engineering (64.5%), Transport Engineering (60.7%), Electrical Engineering (59.2%), DASS (44.1%), Automotive Engineering (38.5%), and Civil Engineering (32.0%), highlighting the growing importance of online recruitment platforms in the labour market. Industrial Practical Training (IPT) was the second most important pathway, particularly among ICT (34.1%), Automotive Engineering (23.1%), DASS (20.6%), Civil Engineering (18.0%), and Electrical Engineering (12.8%) graduates, demonstrating the value of workplace-based learning in facilitating graduate transition into employment. College recommendations contributed notably to employment among ICT (39.0%), Civil Engineering (18.0%), and Automotive Engineering (15.4%) graduates, reflecting the significance of institutional support and employer partnerships. Family and friends also played an important role, especially among Transport Engineering (21.3%) and DASS (17.6%) graduates, indicating that personal networks remain relevant in securing employment opportunities. In contrast, work contacts, print media, and social media contributed relatively little across departments. Overall, the findings suggest that

strengthening graduates' digital job-search competencies, expanding industrial attachment opportunities, and enhancing institutional career placement services would improve graduate employability and labour market transition.

Table 9. Sources of Employment Information Among Employed Graduates by Department

Department	Employed n	Coll. Rec. (%)	IPT (%)	Internet (%)	Family/ Friends (%)	Work Contacts (%)	Print/ Media (%)	Social Media (%)
ICT	41	39.0%	34.1%	12.2%	7.3%	7.3%	—	—
Mechanical Eng.	31	—	3.2%	64.5%	6.5%	6.5%	16.1%	3.2%
Transport Eng.	62*	3.3%	3.3%	60.7%	21.3%	—	11.5%	—
Civil Eng.	42	18.0%	18.0%	32.0%	14.0%	10.0%	8.0%	—
Electrical Eng.	125	—	12.8%	59.2%	10.4%	7.2%	8.0%	2.4%
Automotive Eng.	13	15.4%	23.1%	38.5%	15.4%	7.7%	—	—
DASS	34*	—	20.6%	44.1%	17.6%	5.9%	8.8%	—

3.2.7 Employment Status by Employer Category

The findings show that there was considerable departmental variance in the employer category. Public sector employment dominated in Mechanical Engineering (particularly education and government workshops), Transportation Engineering (public infrastructure agencies), and Civil Engineering (local government and infrastructure authorities). Private sector employment was dominant in ICT, where 58.3% of Computer Science employed graduates and 88.2% of Information Technology graduates were in the private sector, reflecting the commercial nature of Tanzania's growing digital economy. Automotive Engineering graduates were predominantly absorbed by the private automotive service and repair sector. DASS graduates entered across education, health, and government laboratory services in roughly equal measure.

3.2.8 Type of Employment Contracts

The results reveal a striking range of employment quality outcomes with the ICT

Department recording the highest permanent/full-time contract rate in the College at 87.8%, with the remaining 12.2% on fixed-term arrangements and no part-time contracts reported. Mechanical Engineering recorded the second-highest permanent contract rate (83.9%), closely mirroring the broader 2025 ATC institutional average of 83.1%. Transportation Engineering achieved an 80.6% permanent contract rate, with Bachelor's Degree graduates recording an even higher rate (82.6%) than Ordinary Diploma graduates (75.0%) — confirming the qualification-linked employment quality premium observed throughout this tracer study. Civil Engineering recorded a 73.8% permanent contract rate, with Civil and Irrigation Engineering graduates achieving more favourable terms (85.7% permanent) compared to Civil Engineering graduates (67.9% permanent) — directly reflecting the former programme's stronger public sector concentration. Electrical Engineering recorded a moderate 68.8% permanent contract rate — lower than Mechanical Engineering (83.9%) but still a majority outcome. The Automotive Engineering Department recorded by far the most concerning contract profile in the College: only 7.7% of employed graduates (a single individual) held a permanent contract, while 69.2% were on fixed-term arrangements and 23.1% on part-time contracts, as shown in Table 10.

Table 10. Types of Employment Contracts Among Employed Graduates by Department

Department	Employed (n)	Permanent / Full-Time (%)	Fixed-Term (%)	Part-Time (%)
ICT	41	87.8%	12.2%	0.0%
Mechanical Engineering	31	83.9%	12.9%	3.2%
Transportation Engineering	62	80.6%	11.3%	8.1%
Civil Engineering	42	73.8%	14.3%	11.9%
Electrical Engineering	125	68.8%	28.8%	2.4%
Automotive Engineering	13	7.7%	69.2%	23.1%
DASS	37	54.1%	32.4%	13.5%

3.2.9 Job-Programme Alignment

The alignment between graduates' employment and their programme of study is a critical indicator of curriculum relevance and programme effectiveness. Across ATC departments, this alignment varied considerably, with most programmes demonstrating strong relevance to the labour market.

The ICT Department's Computer Science programme achieved the highest alignment rate of any programme in the College, with 100% of employed Computer Science graduates (n=24) reporting their job as closely related to their programme. Information Technology graduates achieved 70.6% closely related employment. Mechanical Engineering reported 80.0% (Mechatronics) and 86.7% (general Mechanical Engineering) job-programme alignment. Transportation Engineering graduates reported 50.0% closely related employment, with the remaining graduates working in somewhat-related fields within the broader construction and infrastructure sector.

Civil Engineering demonstrated a 79.1% closely related rate among formally employed graduates, consistent with the engineering sector's strong technical specialization requirements. Electrical Engineering achieved 82.4% closely related employment overall, with the highest rates in EE (100% closely related) and EBE (83.9% closely related). Automotive Engineering recorded the lowest alignment rate, with only 46.2% of Auto-Electrical Engineering graduates reporting closely related employment, and 40.0% for Automotive Engineering — reflecting the relatively generalist nature of automotive repair skills and the informal sector absorption of many graduates. DASS reported approximately 47.1% closely related employment, with the remaining self-employed graduates frequently working in non-laboratory fields.

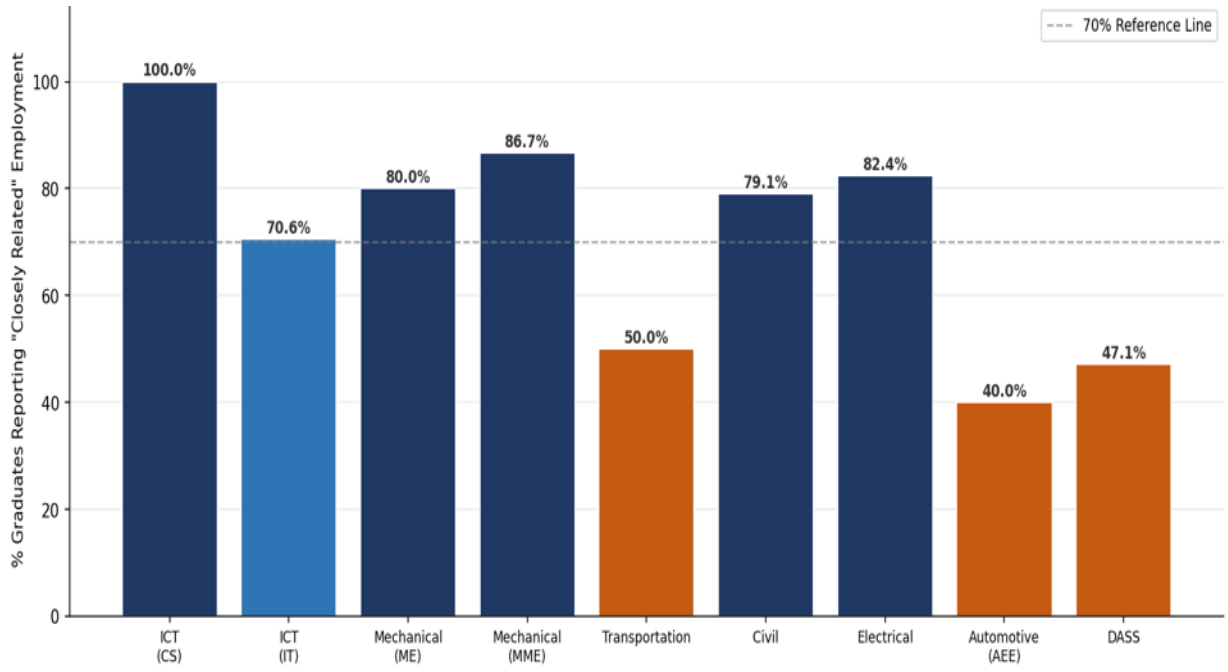

Figure 4. Job-Programme Alignment Rates by Programme (% Closely Related)

3.2.10 Categories of Self-Employment

The findings indicate that Self-employment constituted a meaningful economic pathway across all seven departments, with rates ranging from 10.2% (DASS) to 29.7% (Transportation Engineering) at the time of the survey. Across ATC as a whole, self-employment demonstrates the entrepreneurial potential of graduates and the extent to which technical training facilitates income-generating activity beyond formal employment.

3.2.11 Relationship Between Self-Employment and Field of Study

The findings show that in the ICT Department, 14.0% of graduates were self-employed, predominantly in web development, computer repair, and freelance IT services, sectors directly aligned with their programme of study. Mechanical Engineering self-employment was distributed across fabrication, repair workshops, and manufacturing services. Transportation Engineering had a particularly high self-employment rate (29.7%), with graduates establishing road surveying consultancies, construction project management services, and materials testing enterprises.

Civil Engineering self-employment was concentrated in construction (85.7% of self-employed graduates in the sector), confirming a direct translation of programme skills into

enterprise creation. Electrical Engineering self-employed graduates operated predominantly in electrical installation, renewable energy systems, and biomedical equipment servicing. Automotive Engineering recorded the highest rate of enterprise-scale self-employment, with all self-employed graduates (n=6, 18.8%) employing at least one additional worker, suggesting micro-enterprise development rather than solo freelance work. In DASS, the findings reveal that 52.9% of self-employed laboratory science graduates operated enterprises unrelated to their field of study, the highest rate of non-field-aligned self-employment across all departments. This suggests that while DASS graduates demonstrate entrepreneurial activity, the curriculum may not be sufficiently equipping graduates to establish laboratory-based enterprises (diagnostic laboratories, food testing services, environmental monitoring consultancies) compared to other non-specialized livelihoods.

3.2.12 Challenges Faced in Self-Employment

The findings reveal that across all departments, the most commonly cited challenges in self-employment were access to capital and financial resources, limited business management skills, weak market networks and client development capacity, regulatory compliance burdens, and competition from established businesses. These findings are consistent across ICT, Mechanical, Civil, Electrical, and DASS departments and point to a systemic gap in entrepreneurship and business management curriculum across ATC programmes.

3.3 Further Academic Studies

The findings indicate a significant proportion of graduates across all departments were pursuing further academic studies at the time of the survey, reflecting both career advancement motivations and, in some cases, the use of further studies as an alternative to unemployment.

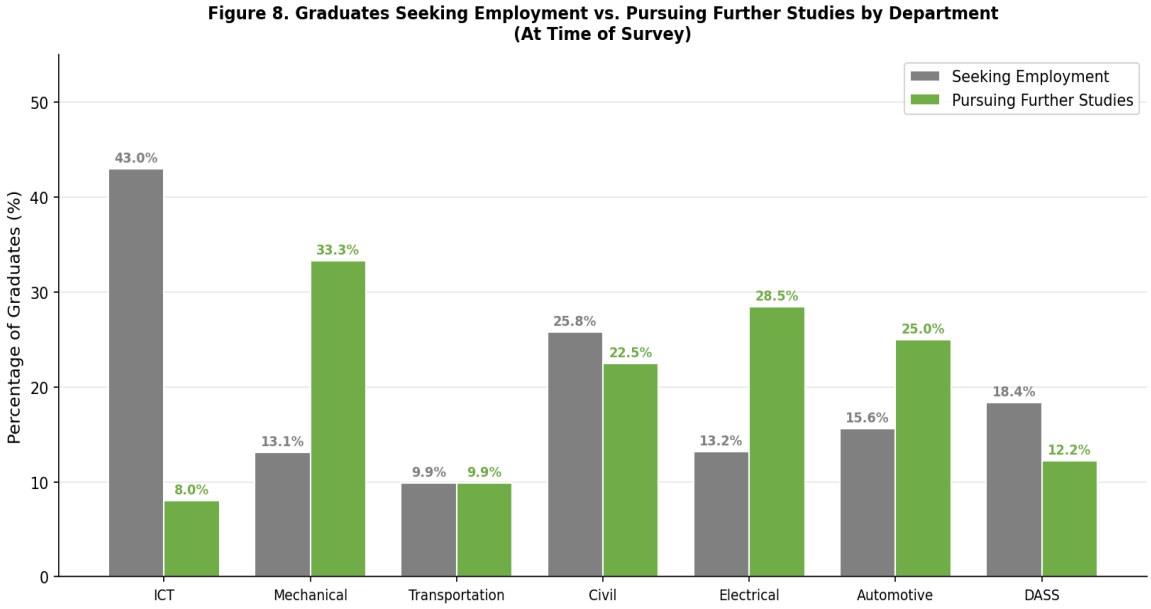

Figure 5. Graduates Seeking Employment vs. Pursuing Further Studies by Department (At Time of Survey)

The Mechanical Engineering Department recorded the highest further studies rate (33.3%), driven largely by the Pipe Works, Oil and Gas Engineering programme, where 84.6% of graduates were pursuing further academic qualifications, a finding that reflects limited availability of direct employment placements in Tanzania for this niche programme.

Electrical Engineering also had a substantial further studies rate (28.5%), driven by the EBE programme. Civil Engineering graduates pursuing further studies (22.5%) were predominantly seeking to upgrade from NTA Level 6 to Level 8 to qualify for higher-grade engineering registration and public sector appointment.

In contrast, Transportation Engineering had the lowest further studies rate (9.9%), consistent with its predominantly degree-level cohort that is already qualified for direct professional entry. ICT had the lowest further studies proportion (8.0%), while its high seeking-employment rate (43.0%) indicates that the primary challenge for ICT graduates is labour market absorption rather than qualification upgrading.

The primary motivations for further studies, cited consistently across departments, were: acquiring specialised knowledge for career advancement; upgrading qualifications to meet employer requirements; pursuing postgraduate research; and, in some cases, extending studies due to limited immediate employment opportunities.

3.4 Relevance of Training with Labour Market Demands

The findings indicate that communication skills emerged as the most demanded competency in ICT and DASS, reflecting the client-facing, reporting-intensive, and collaborative nature of work in digital services and laboratory environments respectively. Across other engineering departments (Mechanical, Transportation, Civil, Electrical, Automotive), practical skills, encompassing hands-on technical ability, equipment operation, and field practice, were consistently the most demanded competencies. This distinction between technical and service-oriented departments has important implications for curriculum design.

Problem-Solving was ranked as the most demanded competency in Civil Engineering, consistent with the complex, site-specific, and multi-disciplinary nature of civil and infrastructure engineering practice. Mathematical Skills were specifically highlighted in Mechanical Engineering (particularly Mechatronics), reflecting the computational demands of modern manufacturing and automation. Teamwork and Work Ethics featured prominently across all departments as secondary competencies, underscoring the importance of professional values and collaborative working in contemporary employment contexts.

3.5 Graduates' Satisfaction with Training

3.5.1 Aspects of their Training that Graduates Enjoyed Most

Graduates across all departments consistently identified several key aspects of their training at ATC as particularly enjoyable. Industrial Practical Training (IPT) and site-based learning emerged as the most frequently cited positive elements, especially among graduates of the ICT, Mechanical Engineering, Transportation Engineering, Civil Engineering, and Electrical Engineering departments. IPT was widely recognized for providing direct exposure to real-world working environments, serving as a crucial factor in preparing students for employment.

Specialised technical coursework was also highly appreciated. This included web

development modules in ICT, structural design and highway engineering in Transportation and Civil Engineering, power systems engineering in Electrical Engineering, and automotive diagnostics in Automotive Engineering. Graduates praised these courses for being both intellectually stimulating and directly relevant to their career aspirations.

Additionally, laboratory and workshop practice was specifically highlighted by DASS, Electrical, and Mechanical Engineering graduates for its role in developing essential hands-on skills. The interdisciplinary and applied nature of education at ATC, integrating mathematics, physics, field practice, and design, was also valued for equipping graduates with a broad and adaptable technical skillset

3.5.1 Aspects of their Most that Graduates Found Challenging

Graduates identified several recurring challenges that cut across the various academic departments. The most frequently reported concern was the inadequacy and obsolescence of practical training facilities. Graduates indicated that laboratory equipment, workshop machinery, field survey instruments, and simulation systems were either insufficient or outdated, limiting their exposure to current industry technologies. This challenge was particularly evident in Electrical Engineering, where graduates highlighted inadequate biomedical equipment and hydropower simulation facilities, in Civil Engineering where surveying equipment was insufficient, and in Automotive Engineering where access to modern vehicle diagnostic equipment was limited.

Another prominent challenge was the perceived imbalance between theoretical instruction and practical application. Graduates across all departments observed that the curriculum placed greater emphasis on theoretical knowledge than on hands-on learning experiences, thereby reducing their preparedness for workplace demands and limiting the development of practical competencies required by employers.

The study also identified concerns regarding curriculum relevance in specific disciplines. Graduates from Civil and Transportation Engineering questioned the inclusion of programming courses such as MATLAB and C++, arguing that these subjects had limited applicability to their day-to-day professional responsibilities. Similarly, graduates from

Information and Communication Technology programmes reported that some software applications and development tools used during training were outdated and did not adequately reflect current industry standards and technological advancements.

Industrial Practical Training (IPT) was consistently recognised as one of the most valuable components of the training programmes. However, graduates reported considerable variations in the quality of IPT experiences across departments and host organizations. The challenges cited included inconsistent supervision, differences in the level of practical exposure provided by industry partners, and varying degrees of commitment from host institutions, all of which affected the effectiveness of workplace learning.

Finally, graduates raised concerns regarding the quality and consistency of teaching. Participants from several departments reported variations in lecturers' teaching effectiveness, instructional approaches, and levels of student engagement. These inconsistencies were perceived to influence learning experiences and, in some cases, affected graduates' acquisition of the knowledge, practical skills, and professional competencies expected from their respective programmes.

3.6 Graduates' Recommendations for Improving Training at the College

Thematic analysis of graduate recommendations across all seven departments revealed six major priority recommendations for improving the quality of training that were consistently cited across the College. These are presented below in order of frequency and emphasis:

(a) Enhance practical training facilities by upgrading laboratories, workshops, field equipment, engineering software, and simulation technologies to align with current industry standards.
(b) Strengthen curriculum relevance by increasing practical and competency-based learning, integrating emerging technologies, reviewing outdated course content, and embedding applied entrepreneurship and business skills.
(c) Strengthen industry collaboration through formal partnerships with employers to improve Industrial Practical Training (IPT), facilitate graduate recruitment, expand

mentorship opportunities, and enhance industry participation in teaching and curriculum development.

(d) Improve teaching quality by investing in continuous professional development for academic staff, promoting industry exposure for lecturers, and strengthening learner-centred and practical teaching approaches.

(e) Enhance career development services by establishing effective career guidance, job placement support, employer networking opportunities, alumni engagement, and graduate mentorship programmes to facilitate the transition from education to employment.

(f) Strengthen digital infrastructure by improving internet connectivity, introducing e-learning platforms, and modernising digital laboratories to support technology-enhanced teaching and learning.

3.7 Employers' Responses

3.7.1 Employers' satisfaction with the skills and abilities of graduates

The study assessed employers' satisfaction with the skills and competencies demonstrated by ATC graduates using a five-point Likert scale. The findings indicate that the majority of employers were strongly satisfied with graduates' ability to demonstrate conceptual knowledge relevant to their work, apply occupation-specific technical skills, interact effectively with colleagues to foster productive working relationships and achieve organizational goals, and perform tasks accurately with careful attention to detail, as presented in Table 11. Employers also expressed satisfaction with graduates' performance across the remaining competency areas, indicating that ATC graduates generally possess the competencies required in the workplace. Across all seven departments and 726 respondents, graduates consistently rated practical, applied, and interpersonal competencies, closely mirroring the four dimensions on which employers expressed strong satisfaction — as more critical to workplace performance than abstract theoretical knowledge. This convergence between employer-reported satisfaction and graduate-reported competency demand strengthens confidence that ATC's training is, on the whole, producing graduates whose practical orientation aligns with what both employers value and what graduates themselves experience as essential in their roles

Table 11. Employers' Satisfaction with Graduates' Skills and Competencies

Skill/Competency	Mean	Description
Demonstrate conceptual knowledge related to work	4.53	Very satisfied
Use specific technical skills related to the job being done	4.53	Very satisfied
Use a computer and other technological tools to perform necessary tasks	4.37	Satisfied
Speaks in a clear, concise, and correct manner	4.42	Satisfied
Writes in a clear, concise, and correct manner	4.35	Satisfied
Interact with others in a way that contributes to effective working relationships and achievement of goals	4.56	Very satisfied
Determines tasks and resources to complete activities	4.53	Very satisfied
Observes safety issues while performing assigned tasks	4.44	Satisfied
Performs tasks accurately and pays attention to details	4.53	Very satisfied
Creates innovative strategies and/or products that meet identified needs	4.30	Satisfied
Observes work ethics, discipline, and code of conduct	4.47	Satisfied
Applies mathematical techniques with the accuracy required to solve problems and make decisions	4.14	Satisfied
Critical thinking	4.16	Satisfied

3.7.2 Knowledge and Skills Gap Among Graduates

While employers expressed strong overall satisfaction with the conceptual knowledge, technical skills, interpersonal effectiveness, and attention to detail demonstrated by ATC graduates (Table 11), employers also identified specific areas of skills gap when asked

to comment on where graduate performance fell short of workplace requirements as shown in Table 12:

Table 12. Summary of Knowledge and Skills Gap Identified by Employers Among Employed Graduates

Department	Employer-Identified Knowledge and Skills Gap
ICT	Limited exposure to current cloud, cybersecurity, and AI/ML tools
Mechanical Engineering	Hands-on workshop proficiency; applied use of mathematics
Transportation Engineering	Familiarity with surveying equipment and site procedures
Civil Engineering	Site-based practical readiness; qualification-role matching
Electrical Engineering	Exposure to live/operational facilities (e.g., hydropower); job-search readiness
Automotive Engineering	Specialised diagnostic/technical skills beyond general competence
DASS (Applied Sciences)	Applied laboratory technique; quality management standards; business application of skills

3.7.3 Recommendations from Employers for Training Improvement

Employers were asked to suggest areas for improvement at the College to increase employability. Thematic analysis of the findings revealed the following key recommendations from employers:

(a) Give students more exposure to current industry-standard tools, instruments, and live/operational facilities before graduation.

(b) Provide longer, more closely supervised industrial attachments to build workplace conduct, professional readiness, and a smoother transition into employment.

(c) Move beyond general competence (especially in Automotive) toward stronger applied numeracy and system/technology-specific skills aligned to employer needs.

(d) Improve professional presentation and job search skills among graduates. – Better prepare graduates to present their qualifications, navigate recruitment processes, and meet specific role requirements.

CHAPTER FOUR

CONCLUSIONS AND RECOMMENDATIONS

4.1. Conclusions

This tracer study provides comprehensive insights into the employment outcomes, training relevance, and satisfaction levels of graduates from Arusha Technical College. Notably, reveals a deep and persistent gender imbalance across all seven academic departments. Male graduates account for an estimated 78.5% of the total surveyed cohort (N=726), with female participation accounting for 21.5%. The College has not yet achieved meaningful gender equity in its student intake across any of its seven departments.

The employment outcomes across departments at the College demonstrate a broadly positive pattern of progressive labour market absorption, with formal employment rates improving between the initial six-month measurement and the time of survey in six of the seven departments. The exception was the ICT Department, where the formal employment rate remained static at 35.0%, a finding that points to a specific structural challenge in that department's labour market engagement rather than a general College-wide failure. This implies that programmes are broadly effective in facilitating graduate absorption into the labour market, but that significant variation exists across departments, and that targeted interventions are required in departments where absorption remains below 50% combined employment at survey time, specifically ICT (49.0%) and Civil Engineering (51.7%). The consistent finding that NTA Level 8 (Bachelor's Degree) graduates achieved substantially higher formal employment rates than NTA Level 6 (Ordinary Diploma) graduates across all departments most starkly illustrated in Electrical Engineering (81.0% vs. 21.6%) and Transportation Engineering (79.3% vs. 54.8%), confirms the employment premium associated with higher qualification levels. This has important implications for institutional policy regarding the allocation of degree-level places and the provision of qualification upgrading pathways.

IPT emerged as the single most powerful determinant of graduate employment outcomes across all seven departments. In the ICT Department, 39.0% of employed graduates cited

College recommendation and 34.1% cited IPT directly as their primary employment source. Comparable patterns were observed in Mechanical Engineering, Civil Engineering, Transportation Engineering, and Electrical Engineering. Automotive Engineering graduates similarly demonstrated that IPT host organisations functioned as primary recruitment pipelines. This implies that the IPT system is its most strategically valuable asset for graduate employment outcomes, and that any institutional strategy for improving employment rates must centre on deepening, systematizing, and expanding the quality, coverage, and industry partner base of IPT placements across all departments.

The findings also reveal that there is a significant and college-wide misalignment between the weight given to theoretical instruction in ATC's current curriculum delivery and the competency demands of employers in Tanzania's labour market. This does not invalidate the importance of theoretical foundations — which remain essential for professional competence — but it does indicate that the balance, pedagogy, and contextualisation of theoretical content requires systematic review and reorientation across all departments. The curriculum must demonstrably connect theory to applied practice, rather than treating theoretical knowledge as an end in itself.

Despite the challenges documented above, graduate satisfaction with ATC's training was broadly positive, with Industrial Practical Training, specialised technical coursework, and laboratory or workshop-based learning identified as the most valued elements of training across all departments. This finding affirms that where ATC's practical and applied training components are well-resourced and well-implemented, they produce high-quality learning experiences that graduates recognise as directly relevant to their professional development

4.2. Recommendations

The results of this tracer study highlight a chance to enhance educational planning and development, ensuring that graduates are adequately equipped for the job market. To leverage these insights and improve graduates' employability, the following recommendations are suggested.

a) Developing a multi-year Capital Investment Plan for practical infrastructure, prioritising procurement of updated electrical engineering automation and biomedical equipment, civil and highway engineering surveying instruments, modern automotive diagnostic systems, analytical laboratory instruments for DASS, and current ICT servers, networking hardware, and software licences. Establish a dedicated annual budget allocation for laboratory and workshop equipment maintenance, renewal, and upgrading, and ring-fence it from general operating budget pressures
b) Redesign theoretical modules to ensure explicit contextualisation within applied professional practice, replacing decontextualised theory teaching with problem-based and project-based learning approaches that demonstrate theory's relevance to real-world technical challenges.
c) Formalise the IPT programme through a structured framework that defines: minimum standards for IPT host organisation quality; clear supervisory and reporting requirements during placement; systematic student performance assessment; and explicit mechanisms for converting IPT hosts into graduate recruiters. Establish and maintain an active, searchable database of IPT partners for each department, with partner performance ratings, and actively cultivate new IPT partnerships in underserved sectors.
d) Develop a comprehensive and maintained digital alumni network enabling graduates to access mentoring, job leads, professional development, and College institutional support beyond graduation and introduce structured pre-graduation employability modules in the final semester of all programmes, covering professional CV preparation, interview skills, professional networking, workplace communication, and understanding employment contracts.

e) Actively promotes ATC's technical programmes to girls, features female graduate role models, and addresses gender stereotypes about technical and engineering careers. Develop and implement a Gender Mainstreaming Action Plan covering all seven departments and establish a female student mentoring network within the College, pairing current female students with female graduates now working in relevant industries, to provide role modelling, study support, and career guidance.
f) Redesign entrepreneurship curriculum across all departments to move from generic business principles to sector-specific enterprise development pathways, enabling graduates to identify and pursue commercially viable business opportunities grounded in their technical training. For DASS specifically, introduce laboratory-based enterprise development content covering: establishment of private diagnostic laboratories; food and water quality testing services; environmental monitoring consultancies; pharmaceutical testing; and laboratory equipment maintenance businesses, aligned with Tanzania's growing mining, health, and food processing sectors.
g) Establish an annual industry attachment programme for all academic staff across all departments, requiring lecturers to spend a minimum of two to four weeks per year working within relevant industry organisations to maintain current knowledge of professional practice.

This Graduate Tracer Study report represents a landmark evidence-gathering exercise that has, for the first time, produced a college-wide, comparative, and cross-departmental picture of what happens to ATC graduates after they complete their studies. Its findings affirm that ATC is an institution with genuine strengths, most notably its IPT model, its technically rigorous programmes, and the strong alignment between most of its engineering curricula and Tanzania's labour market needs, while also identifying systemic challenges in practical infrastructure, curriculum balance, gender equity, and career placement services that require urgent and sustained institutional attention.

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