

Curriculum Framework

The Digital Bridge Programme — Sixteen Programmes, Four Families

Version 1.0 | Issued 14 September 2026 | Reference CFQ / CUR / 2026 / 003

This framework sets out the full curriculum for the Digital Bridge Programme: sixteen programmes across four families, 3,734 contact hours, with module structure, chapter content, learning outcomes and assessment specified for each. It is submitted in support of curriculum approval, training centre accreditation and the operating permissions listed in section 13.

It is written for a country in which 12.8 percent of the population is digitally literate, 6.6 percent in rural districts, and 44 percent of schools have no internet connection. The curriculum is therefore specified to be deliverable in four distinct resource conditions, including one in which no computer is available at all.

Every programme in this framework can be delivered, in whole or in part, without a permanent computer laboratory. Section 6 sets out how, and this is the principal design contribution of the framework.

DOCUMENT IDENTIFICATION

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DOCUMENT TITLE	Digital Bridge Programme — Curriculum Framework and Scheme of Work
ISSUED BY	CODAFRIQA LTD, Kimironko, Gasabo District, Kigali City
SUBMITTED TO	Rwanda TVET Board; Ministry of Education; Ministry of ICT and Innovation
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PROGRAMMES COVERED	Sixteen, across four families
TOTAL CURRICULUM HOURS	3,734 contact hours
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1. Purpose and regulatory intent

This document is submitted to the Rwanda TVET Board and to the ministries named above in support of four requests: approval of sixteen curricula, accreditation of CODAFRIQA LTD as a training provider, recognition of the assessment and certification scheme, and authorisation to deliver school-based programmes in partnership with the education system.

Beyond compliance, the framework is offered as a contribution to national capacity. The teacher programmes in Family B are designed to be deliverable at scale against the existing national effort to bring basic education teachers to a digital literacy baseline, and CODAFRIQA is prepared to deliver them under contract, under partnership, or to make the curriculum available to other accredited providers.

A certificate that no institution recognises is a poor return on a learner's ten weeks. Accreditation is therefore pursued not as an administrative formality but because it is what makes the qualification tradeable in the labour market, and what allows a learner to carry competence from one provider to another.

2. Curriculum design principles

Seven principles govern every programme in this framework. They are stated here because they explain design decisions that would otherwise appear unconventional.

- Competence is demonstrated, never declared. Every learner is assessed on entry and on exit against the same rubric. At L0 this assessment is conducted by trainer observation, because a computer-administered test cannot measure a person who cannot operate a computer.
- Every session ends in a completed task. Learners in Family A are adults with competing obligations. Retention depends on visible progress in the first session, not on the certificate at the end of the tenth.
- The curriculum is specified against the worst available conditions, not the best. A programme that only works in a fully equipped laboratory cannot reach the population this framework exists to serve.
- Language is a delivery variable. Families A and B are delivered in Kinyarwanda by default, with English and French terminology introduced deliberately as technical vocabulary rather than as the medium of instruction.
- Curriculum is separated from learner segment. A refugee learner and a Kigali resident at the same assessed level receive the same curriculum. What differs is venue, language, pacing and funding, which keeps quality consistent and the number of curricula small.
- Content is dated and reviewed. Family D modules are reviewed every six months against industry practice; Families A to C annually. A technology curriculum that is not reviewed is a technology curriculum that is wrong.
- Data protection is taught, not appended. It appears as assessed content in five programmes because learners in this framework will handle pupil records, customer records and organisational data.

3. Alignment to national and international frameworks

FRAMEWORK	HOW THIS CURRICULUM ALIGNS
Rwanda TVET Qualification Framework	Every programme is proposed against an RTQF level, from pre-level foundation through Level 5. Module structure, learning outcomes and performance criteria follow competency-based training convention so that assessment evidence is portable into the national system.

FRAMEWORK	HOW THIS CURRICULUM ALIGNS
Competence-Based Curriculum	Families B and C are written to complement the national school curriculum rather than duplicate it. Teacher programmes reference CBC lesson planning directly, and C1 and C2 close practical gaps rather than reteach theory.
UNESCO Digital Literacy Global Framework	The four-level competency scale maps onto the DLGF competence areas, so that a Digital Bridge certificate is legible to an international funder or employer without translation.
Vision 2050 and NST2	Direct contribution to human capital development and digital empowerment targets. The teacher family addresses the documented competency bottleneck in basic education.
Law No. 058/2021 on personal data	Data protection is a taught module in five programmes and a governing requirement of programme administration, not a compliance annex.

RTQF level assignments are proposed by CODAFRIQA and are submitted for confirmation and adjustment by the Rwanda TVET Board. They represent our assessment of equivalence and are not a claim of existing accreditation.

4. The competency ladder

Four levels describe learners. Sixteen programmes describe provision. A learner is placed on the ladder by assessment, and the ladder determines which programmes are open to them. The governing rule of the framework is that every level has provision above it: whatever level a person arrives with, there is a programme that will move them up from there.

LEVEL	DESIGNATION	RTQF	DESCRIPTOR
L0	Pre-foundational	Below Level 1	No prior computer use. Cannot operate a mouse, keyboard or touchscreen unaided. Assessed by trainer observation against a printed rubric, never by computer-administered test.
L1	Foundational	Level 1	Operates a device independently; navigates a file system; uses browser, email and online services; transacts and recognises fraud.
L2	Applied	Levels 2 to 3	Produces documents and structured data to workplace or academic standard; collaborates online; applies digital tools to a domain task.
L3	Specialist	Levels 4 to 5	Performs to entry professional standard in a technical specialisation, with evidence of independent build, test and delivery.

L0 is an entry state and never an exit state. No learner completes a Digital Bridge programme at L0.

5. Programme register

The full framework at a glance. Delivery modes are defined in section 6.

REF	PROGRAMME	HOURS	DURATION	RTQF	ENTRY	MODES
A1	Using a Computer for the First Time	20 hrs	5 weeks	Pre-foundation	L0	1, 2, 3, 4
A2	Getting Things Done Online	24 hrs	6 weeks	Level 1	L1, or completion of A1	1, 2, 3
A3	Digital Skills for Finding Work	40 hrs	10 weeks	Level 2	L1, or completion of A2	1, 2, 3
A4	Digital Skills for Your Business	30 hrs	8 weeks	Level 2	L1, or completion of A2	1, 2, 3
B1	Teacher Digital Foundations	40 hrs	10 weeks	Level 2	Serving basic education teacher	1, 2, 3, 4
B2	Teaching With Technology	40 hrs	10 weeks	Level 3	L1 or above	1, 2
B3	Digital Starter for Rural Pupils	20 hrs	5 weeks	Primary and lower secondary enrichment	Pupils in schools without functioning digital learning equipment	2, 3, 4
B4	Advanced Tech Enrichment	40 hrs	6 weeks	Level 3	L2	1
C1	Post-S3 Computer Science Readiness	120 hrs	8 weeks	Level 3	L1 to L2	1, 2
C2	Post-S6 University Tech Readiness	160 hrs	10 weeks	Level 4	L2	1
D1	Software Engineering Intensive	600 hrs	6 months	Level 5	L2 to L3	1
D2	UI/UX Design Intensive	400 hrs	4 months	Level 5	L2	1
D3	Data and AI Intensive	500 hrs	5 months	Level 5	L2 to L3	1
D4	Cybersecurity Entry Track	400 hrs	4 months	Level 5	L2 to L3	1
D5	Networks and Systems Administration	400 hrs	4 months	Level 5	L2	1
D6	Career Change into Technology	900 hrs	10 months	Level 5	L1 to L2	1

6. The constrained delivery protocol

This is the design contribution on which the rest of the framework depends. A curriculum specified only for a fully equipped laboratory cannot reach a country in which 44 percent of schools have no internet connection and the majority of primary schools have no digital learning equipment. Every programme in this framework is therefore specified against four resource conditions, and the assessed outcomes do not change between them.

MODE	CONDITIONS	ADAPTATION APPLIED	PROGRAMMES SUPPORTED
Mode 1 Equipped	Permanent lab, one device per learner, reliable power and connectivity.	None. Full curriculum as written, delivered at standard pace.	All sixteen programmes.
Mode 2 Shared	One device per two or three learners; intermittent connectivity; power interruptions expected.	Paired rotation protocol with defined operator and navigator roles, rotating every twelve minutes. Contact hours extended by 25 percent. Offline content package pre-loaded. Assessment individualised despite shared practice.	A1 to A4, B1 to B3, C1.
Mode 3 Visiting	No permanent equipment. Mobile unit attends weekly or fortnightly.	Device time reserved exclusively for tasks that require a device. Printed workbooks carry consolidation between visits. SMS reinforcement prompts issued on non-visit days. Trainer sets and collects practical work each visit.	A1 to A4, B1, B3.
Mode 4 Unplugged	No devices available at all, temporarily or at programme start.	Unplugged pedagogy: paper keyboards for muscle memory, printed interface sheets for navigation drill, role-played processes, algorithmic playground games. Bridges a gap; never a permanent delivery mode, and capped at 30 percent of any programme.	A1 (first two weeks), B1, B3.

6.1 The shared device protocol

Where one device serves two or three learners, unstructured sharing produces one learner who operates and one who watches. The protocol is therefore explicit: learners work in defined roles, an operator who controls the device and a navigator who reads the task and directs, rotating every twelve minutes on a trainer signal. The navigator role is assessed as rigorously as the operator role, because articulating a sequence of actions is itself a competence. Assessment remains individual regardless of how practice was organised.

6.2 Unplugged pedagogy

Mode 4 exists because learning should begin before equipment arrives. Paper keyboards build the muscle memory of letter position. Printed interface sheets allow navigation to be drilled without a screen. Sorting and searching algorithms are taught as playground games. Processes such as saving a file are role-played before they are performed. This is established practice internationally and is used here for a specific local reason: it allows a school on a mobile unit rotation to prepare pupils in the fortnight before the unit arrives, which roughly doubles the value extracted from each visit.

Mode 4 is capped at 30 percent of any programme and is never a permanent condition. A learner who completes a programme having never touched a computer has not completed it.

6.3 Power and continuity

Every delivery site operates on the assumption that supply will be interrupted. Foundation rooms carry battery backup sufficient for one full session. Trainers are trained to continue teaching through an outage using Mode 4 methods rather than dismissing a cohort, and B2 contains a chapter devoted specifically to teaching when the power fails. Learner work is saved locally and synchronised when connectivity returns, so that an interruption never destroys a session's output.

6.4 Content without connectivity

All learning materials exist in three forms: an offline package pre-loaded onto every device and mobile unit, a printed workbook, and short SMS reinforcement prompts delivered to a feature phone. No programme requires a learner to be online in order to study. Connectivity, where present, is reserved for the tasks that genuinely need it, principally the government services and communication modules in A2.

6.5 Sponsor-established delivery sites

Where a partner finances delivery for a community, the delivery site is established to the specification of the mode and room type the programme requires, and is funded by that partnership. This matters for access rather than logistics: it means a sponsored learner who assesses at a specialist level is not confined to the programmes a visiting mobile unit can support. A professional intensive requires a studio with extended-hours access and cannot run in Mode 3, so a sponsorship intending to deliver one must establish a facility capable of it, or alternatively fund the participants' travel and living costs to an existing hub.

Assessment determines the learner's level, the partnership determines who pays, and the programme determines where it can be taught. These three are decided independently of one another.

	PARTNER-SPONSORED ACCESS	PAID ACCESS
Who it serves	Refugees, persons with disabilities, and learners from underserved or financially disadvantaged communities.	Members of the public, employers purchasing places, and public institutions commissioning training.
Who pays	Foundations, corporate sponsors, government programmes or development partners.	The learner, an employer, or a commissioning institution.
Where it is taught	Close to participants, in a site established to the specification the programme requires.	CODAFRIQA training facilities, or the institution's premises under contract.
Curriculum and assessment	Identical to the paid route. Same modules, same rubric, same certification.	Identical to the sponsored route. Same modules, same rubric, same certification.

Route governs funding and delivery only. It never determines the standard of teaching, the level a learner may enter, or which programmes are open to them.

7. Family A — Foundations

Free at the point of use, delivered in the community, taught in Kinyarwanda. These four programmes carry the national objective: they are the only ones in the framework designed for a learner who has never touched a computer, and they are the reason the rest of the framework exists. All four support constrained delivery.

A1 Using a Computer for the First Time

Pre-RTQF foundation | 5 weeks | 20 contact hours | Entry: L0. None. No literacy test, no form. | Delivery modes 1, 2, 3, 4

To take a person who has never touched a computer to the point where they can switch one on, operate it unaided, create and retrieve their own work, and recover from a mistake without fear. Fear of breaking the machine is the single largest barrier at this level, and the module sequence is built to dismantle it.

MODULE	CHAPTERS COVERED	HOURS
Meeting the machine	1. Parts of a computer and what each one does. 2. Switching on, logging in and shutting down safely. 3. Reading the desktop: what you are looking at. 4. Caring for equipment and cables.	4
Hands and the machine	1. Holding and moving a mouse; click, double-click and drag. 2. The keyboard: letters, space, enter, backspace, shift. 3. Typing your own name and a short sentence. 4. Correcting mistakes without fear.	6
Making something and keeping it	1. Opening a writing program. 2. Typing a short document. 3. Saving, naming and finding a file again. 4. Printing, where a printer is available.	6
Confidence and next steps	1. What commonly goes wrong and what to do about it. 2. Asking for help and using the help menu. 3. What you can learn next. 4. Practical assessment.	4

ON COMPLETION THE GRADUATE CAN

- Switch on, log in to and shut down a computer without assistance.
- Use a mouse and keyboard with confidence to complete a simple task.
- Create, save, name and retrieve a document of their own.
- Describe what to do when the machine behaves unexpectedly.

Assessment. Continuous observation against the practical rubric, plus a final observed task: create, save, close and reopen a named document.

A2 Getting Things Done Online

RTQF Level 1 equivalent | 6 weeks | 24 contact hours | Entry: L1, or completion of A1. | Delivery modes 1, 2, 3

To make a citizen independent in their dealings with government and financial services online. The organising principle is that every session ends with a task the learner actually needed done, so the programme pays for itself in the learner's own time from week one.

MODULE	CHAPTERS COVERED	HOURS
Understanding the internet	1. What a connection is, and what data costs. 2. Using a browser. 3. Searching so that you find the right thing. 4. Judging whether a website can be trusted.	4
Your digital identity	1. Creating an email account. 2. Sending, receiving and attaching. 3. Passwords that work and how to remember them. 4. Linking your phone number and national identity safely.	6
Government services online	1. Navigating the national service platform. 2. Applying for a document end to end. 3. Tracking an application to decision. 4. Payment confirmation, receipts and record keeping.	6
Money and safety	1. Mobile money beyond USSD. 2. Recognising a scam by message, call or link. 3. What must never be shared with anyone. 4. What to do if you have been defrauded.	6
Assessment	1. Portfolio review. 2. Observed independent transaction.	2

ON COMPLETION THE GRADUATE CAN

- Complete a government service application online without assistance.
- Manage an email account, including attachments.
- Identify a fraudulent message and explain why it is fraudulent.
- Transact by mobile money and verify the result independently.

Assessment. Observed completion of one real service application, plus a scam-identification exercise scored against fixed criteria.

A3 Digital Skills for Finding Work

RTQF Level 2 equivalent | 10 weeks | 40 contact hours | Entry: L1, or completion of A2. | Delivery modes 1, 2, 3

To equip a job seeker with the specific digital capabilities that employers screen for, and to produce a finished application portfolio that the learner leaves with rather than a certificate alone.

MODULE	CHAPTERS COVERED	HOURS
Typing and document fluency	1. Touch typing to 25 words per minute. 2. Formatting a professional document. 3. Working from templates. 4. Producing a PDF and printing.	8

MODULE	CHAPTERS COVERED	HOURS
The application portfolio	1. Structuring a curriculum vitae. 2. Writing it in clear language. 3. The cover letter. 4. Saving, versioning and sending.	8
Finding and applying	1. Job platforms and where vacancies are actually posted. 2. Completing online application forms. 3. Professional email etiquette. 4. Following up appropriately.	8
Numbers at work	1. Spreadsheet basics. 2. Simple formulas and totals. 3. Tables, sorting and filtering. 4. Producing a simple chart.	8
Professional presence	1. Building a professional online profile. 2. Managing what an employer will find. 3. Virtual interview practice and recording review.	6
Assessment	1. Portfolio submission and defence.	2

ON COMPLETION THE GRADUATE CAN

- Produce a formatted CV and cover letter to employer standard.
- Complete an online application form accurately and unaided.
- Build a working spreadsheet with formulas and a chart.
- Conduct themselves competently in a virtual interview.

Assessment. Assessed portfolio (CV, cover letter, spreadsheet, profile) plus a recorded mock interview scored against a behavioural rubric.

A4 Digital Skills for Your Business

RTQF Level 2 equivalent | 8 weeks | 30 contact hours | Entry: L1, or completion of A2. | Delivery modes 1, 2, 3

To move a trader, cooperative member or small business owner from memory-based trading to recorded trading. The commercial argument made throughout is access to credit: a business with twelve months of records is financeable, and one without them is not.

MODULE	CHAPTERS COVERED	HOURS
Records that work	1. Why records change what a business can do. 2. Building a stock list. 3. Keeping a sales log. 4. Moving the log into a spreadsheet.	8
Money tracking	1. Reading a mobile money statement. 2. Reconciling sales against receipts. 3. Separating business money from personal money. 4. Calculating actual profit.	8
Reaching customers	1. Setting up and using a business messaging account. 2. Photographing products with a phone. 3. Writing an offer that sells. 4. Responding to customers professionally.	8
Growing safely	1. Fraud patterns in trade and how to refuse them. 2. Issuing digital receipts. 3. Preparing records for a credit application. 4. Assessment.	6

ON COMPLETION THE GRADUATE CAN

- Maintain a digital stock and sales record.
- Reconcile mobile money receipts against recorded sales.
- Calculate and state the actual profit of their business.
- Present a twelve-month record set suitable for a credit application.

Assessment. Assessment of the learner's own live business records over the final three weeks, plus a credit-readiness record pack.

8. Family B — Schools and Teachers

The systemic layer. A trained teacher reaches several hundred learners across a career, which makes B1 and B2 the highest-leverage interventions in the entire framework. B3 reaches pupils in schools that have no working equipment, and B4 is fee-paying and cross-subsidises Family A.

B1 Teacher Digital Foundations

RTQF Level 2 equivalent, CPD-recognised | 10 weeks | 40 contact hours | Entry: Serving basic education teacher. No prior digital skill assumed. | Delivery modes 1, 2, 3, 4

To bring a serving teacher from little or no digital proficiency to confident independent operation, addressing the documented pattern in which installed equipment goes unused because the adult in the room lacks confidence rather than access. Every task is set in the teacher's own working context.

MODULE	CHAPTERS COVERED	HOURS
Operating confidently	1. The device and its operating system. 2. Files and folders organised for a teacher. 3. Storage, backup and not losing work. 4. Connecting to a projector or display.	8
Preparing to teach	1. Typing and formatting a lesson plan. 2. Producing worksheets and handouts. 3. Finding and evaluating teaching resources. 4. Managing an offline resource library.	10
Marks and records	1. A marks spreadsheet that works. 2. Averages, ranking and simple analysis. 3. Producing a report. 4. Protecting pupil data under Law No. 058/2021.	8
Professional communication	1. Email for school business. 2. Professional messaging norms. 3. Communicating with parents appropriately.	6
Safety and the teacher as model	1. Online safety for adults and for children. 2. Being a credible digital role model. 3. Recognising and reporting online harm to pupils.	6
Assessment	1. Observed practical assessment.	2

ON COMPLETION THE GRADUATE CAN

- Operate a school computer and display independently.
- Produce lesson plans, worksheets and a functioning marks spreadsheet.

- Handle pupil data in accordance with Rwandan data protection law.
- Model safe and confident digital behaviour to pupils.

Assessment. Observed practical assessment plus a submitted teaching resource pack produced entirely by the teacher.

B2 Teaching With Technology

RTQF Level 3 equivalent, CPD-recognised | 10 weeks | 40 contact hours | Entry: L1 or above. Serving teacher with access to digital classroom equipment. | Delivery modes 1, 2

To convert access into practice. This programme exists because equipment alone does not change teaching: teachers revert to traditional methods under the pressure of a live lesson unless they have rehearsed on the exact equipment and planned for its failure. Practice, not theory, is the method throughout.

MODULE	CHAPTERS COVERED	HOURS
Smart Classroom operation	1. The interactive display in a live lesson. 2. Device trolleys, charging and distribution. 3. The five failures that occur most often, and their fixes. 4. Teaching on when the power goes.	8
Pedagogy with digital tools	1. When technology improves a lesson and when it does not. 2. Designing a lesson with a digital element. 3. Alignment to the competence-based curriculum. 4. Managing fifty pupils and twenty-five devices.	10
Digital content	1. Building a slide set that actually teaches. 2. Adapting freely available content to the syllabus. 3. Curating an offline content library. 4. Simple audio and video for classroom use.	10
Assessment with technology	1. Digital quizzes and instant feedback. 2. Tracking pupil progress over a term. 3. Giving feedback that pupils act on.	8
Observed practice	1. Peer-observed teaching practice. 2. Structured reflection and improvement plan.	4

ON COMPLETION THE GRADUATE CAN

- Plan and deliver a lesson with an integrated digital element, aligned to the national curriculum.
- Recover a lesson when equipment or power fails.
- Produce and curate their own teaching content.
- Use digital assessment to track and act on pupil progress.

Assessment. Two peer-observed lessons scored against a teaching practice rubric, plus a submitted digital lesson unit.

B3 Digital Starter for Rural Pupils

Primary and lower secondary enrichment | 5 weeks | 20 contact hours | Entry: Pupils in schools without functioning digital learning equipment. | Delivery modes 2, 3, 4

To give pupils in schools with no working equipment a genuine first experience of computing. The programme is designed to begin without any device at all, so that learning starts before a mobile unit arrives and continues after it leaves.

MODULE	CHAPTERS COVERED	HOURS
Unplugged computing	1. What a computer actually does, taught without one. 2. Instructions, sequences and precision. 3. Sorting and searching as playground games. 4. Representing data as pictures.	5
First contact	1. Parts of a device and how to care for it. 2. Mouse and keyboard through games. 3. Taking turns productively on a shared device.	6
Making things	1. Drawing and painting on a computer. 2. Typing a short piece of their own. 3. Saving work and finding it again.	6
Safe and smart	1. Looking after school equipment. 2. Online safety at an age-appropriate level. 3. Showcase and assessment.	3

ON COMPLETION THE GRADUATE CAN

- Explain what a computer does and give instructions precisely.
- Operate a shared device cooperatively and carefully.
- Create and save a piece of their own digital work.
- State the basic rules of online safety.

Assessment. Continuous observation plus a pupil showcase in which each child demonstrates one piece of their own work.

B4 Advanced Tech Enrichment

RTQF Level 3 equivalent | 6 weeks, holiday intensive | 40 contact hours | Entry: L2. Secondary students on national or international curricula. | Delivery modes 1

To take students who are already digitally capable well beyond the school syllabus, into genuine building. This is a fee-paying programme and the revenue it generates subsidises Family A delivery, a relationship stated openly to participating families.

MODULE	CHAPTERS COVERED	HOURS
Computational thinking	1. Decomposition and abstraction. 2. Algorithms and efficiency. 3. Pattern recognition. 4. Problem sets.	8
Programming foundations	1. Python syntax and control flow. 2. Data structures. 3. Functions and modularity. 4. Debugging as a discipline.	12
Build project: the web	1. How the web works. 2. HTML and CSS. 3. JavaScript interactivity. 4. Publishing a working site.	10
Applied strand	1. Elective: physical computing and robotics, or data analysis and visualisation. 2. Guided build.	6
Showcase	1. Presentation of a working project to an audience.	4

ON COMPLETION THE GRADUATE CAN

- Write, debug and explain a working program.

- Build and publish a functioning website.
- Decompose an unfamiliar problem into solvable parts.
- Present technical work to a non-technical audience.

Assessment. Working project, code review and public showcase presentation.

9. Family C — Academic Bridge

Transition programmes for learners between educational stages. Both exist to remove the practical disadvantage carried by students from schools without functioning digital equipment, so that subject and degree choice is governed by aptitude rather than prior access.

C1 Post-S3 Computer Science Readiness

RTQF Level 3 equivalent | 8 weeks | 120 contact hours | Entry: L1 to L2. Senior Three completers. | Delivery modes 1, 2

To prepare a Senior Three completer to choose and succeed in computer science at advanced secondary level. The programme closes the practical gap left by schools without functioning equipment, so that subject choice is driven by aptitude rather than by prior access.

MODULE	CHAPTERS COVERED	HOURS
Digital fluency consolidation	1. Operating systems and file management. 2. Productivity tools to academic standard. 3. Research and source evaluation. 4. Typing speed and accuracy.	16
Computational thinking	1. Problem decomposition. 2. Algorithm design and tracing. 3. Flowcharts and pseudocode. 4. Logic and truth tables.	24
Programming foundations	1. Variables, types and operators. 2. Selection and iteration. 3. Arrays and strings. 4. Functions. 5. Reading and debugging other people's code.	32
Mathematics for computing	1. Number systems and binary. 2. Logic and Boolean algebra. 3. Sequences and series. 4. Introductory probability.	24
Study and research skills	1. Structured note taking. 2. Independent study habits. 3. Academic honesty and referencing.	12
Project and assessment	1. Guided individual project. 2. Written and practical examination.	12

ON COMPLETION THE GRADUATE CAN

- Write and trace programs using selection, iteration and functions.
- Convert between number systems and apply Boolean logic.
- Plan and execute an independent piece of work to deadline.
- Enter advanced secondary computer science without a practical disadvantage.

Assessment. Written examination (40%), practical programming examination (40%), project (20%).

C2 Post-S6 University Tech Readiness

RTQF Level 4 equivalent | 10 weeks | 160 contact hours | Entry: L2. Senior Six completers entering a technology degree. | Delivery modes 1

To remove the first-year attrition that follows from arriving at university without having practically applied digital skills. The syllabus deliberately covers the first-semester content at which students without prior access most commonly fail.

MODULE	CHAPTERS COVERED	HOURS
Programming fundamentals	1. Language foundations and environment setup. 2. Control flow and functions. 3. Data structures: lists, dictionaries, sets. 4. File handling. 5. Object-oriented basics. 6. Version control with Git.	40
Discrete mathematics and logic	1. Sets, relations and functions. 2. Propositional and predicate logic. 3. Proof techniques. 4. Graphs and trees. 5. Combinatorics.	28
Computer systems and networks	1. Hardware architecture. 2. Operating system concepts. 3. The command line. 4. Networking fundamentals and the internet stack.	24
Data handling and databases	1. Structured data. 2. Relational modelling. 3. SQL querying. 4. Introduction to data analysis.	24
Academic practice	1. Technical reading and note taking. 2. Report writing. 3. Referencing and academic integrity. 4. Presenting technical work.	20
Capstone	1. Specification, build and defence of an individual project.	24

ON COMPLETION THE GRADUATE CAN

- Write structured, version-controlled programs of moderate complexity.
- Apply discrete mathematics to computing problems.
- Query a relational database in SQL.
- Produce and defend a technical report to academic standard.

Assessment. Continuous assessment (30%), examinations (40%), capstone project and defence (30%).

10. Family D — Professional

Intensive programmes producing employable specialists. These are fee-paying and are the commercial engine that sustains free delivery elsewhere in the framework. Three of the six contain modules written specifically for Rwandan operating conditions and not found in standard international curricula.

D1 Software Engineering Intensive

RTQF Level 5 equivalent | 6 months, full time | 600 contact hours | Entry: L2 to L3. Computer science or IT graduates, or equivalent demonstrated ability. | Delivery modes 1

To convert a graduate with theoretical knowledge into an engineer an employer will hire. The programme is built backwards from the capabilities employers report as missing: version control discipline, testing, deployment, and the ability to work in an existing codebase rather than a blank file.

MODULE	CHAPTERS COVERED	HOURS
Professional foundations	1. Linux and the command line. 2. Version control with Git in a team. 3. Development environment and tooling. 4. Reading an unfamiliar codebase.	40
Programming mastery	1. Advanced language features. 2. Clean code and refactoring. 3. Error handling. 4. Concurrency fundamentals.	80
Data structures and algorithms	1. Complexity analysis. 2. Core structures. 3. Sorting and searching. 4. Graph algorithms. 5. Problem-solving practice.	60
Databases and data modelling	1. Relational design and normalisation. 2. Advanced SQL. 3. Transactions and indexing. 4. Migrations. 5. Non-relational stores.	60
Backend engineering	1. HTTP and API design. 2. Building REST services. 3. Authentication and authorisation. 4. Background processing. 5. Caching and performance.	90
Frontend engineering	1. Modern HTML and CSS. 2. JavaScript in depth. 3. A component framework. 4. State management. 5. Accessibility and low-bandwidth delivery.	80
Testing and quality	1. Unit testing. 2. Integration and end-to-end testing. 3. Test-driven development. 4. Code review practice.	50
DevOps and deployment	1. Containerisation. 2. Continuous integration and delivery. 3. Cloud deployment. 4. Monitoring, logging and incident basics.	50
Security and data protection	1. The OWASP top ten in practice. 2. Secure authentication. 3. Secrets management. 4. Compliance with Law No. 058/2021.	30
Professional practice	1. Agile delivery. 2. Technical communication. 3. Estimation. 4. Interview and portfolio preparation.	30
Capstone	1. Team-built production-grade application, defended before an employer panel.	30

ON COMPLETION THE GRADUATE CAN

- Build, test, secure and deploy a production-grade application.
- Work productively in an existing codebase under version control.
- Design a relational schema and an API to professional standard.
- Pass a technical interview at graduate engineer level.

Assessment. Continuous project assessment (40%), technical assessments (25%), capstone and employer panel defence (35%).

D2 UI/UX Design Intensive

RTQF Level 5 equivalent | 4 months, full time | 400 contact hours | Entry: L2. Graduates and practitioners entering product and interface design. | Delivery modes 1

To produce designers who can work for the Rwandan market rather than imitate designs made for a different one. The distinguishing module is designing for low-bandwidth, low-literacy and feature-phone users, a competence for which there is real local demand and almost no local supply.

MODULE	CHAPTERS COVERED	HOURS
Design foundations	1. Design principles and visual hierarchy. 2. Typography. 3. Colour and contrast. 4. Layout and grids.	40
User research	1. Research methods. 2. Interviewing users. 3. Personas and journey mapping. 4. Synthesising findings. 5. Research in low-literacy contexts.	60
Information architecture and interaction	1. Structuring content. 2. Navigation patterns. 3. Interaction and state. 4. Forms that people can complete.	60
Visual design and design systems	1. Component design. 2. Building a design system. 3. Consistency at scale. 4. Handover to engineers.	70
Prototyping and tooling	1. Industry design tooling. 2. Wireframing to high fidelity. 3. Interactive prototypes. 4. Design version control.	60
Usability testing	1. Planning a test. 2. Moderating a session. 3. Testing with users who cannot narrate their actions. 4. Analysing and reporting.	50
Designing for constrained users	1. Low-bandwidth interface design. 2. Feature phone and USSD flows. 3. Icon and language choices for low-literacy users. 4. Accessibility to WCAG 2.1 AA.	30
Portfolio and practice	1. Case study construction. 2. Portfolio build. 3. Client and stakeholder communication.	30

ON COMPLETION THE GRADUATE CAN

- Run a research study and translate findings into a design.
- Produce a complete design system and engineer-ready handover.
- Design interfaces usable on a feature phone and a constrained connection.
- Present a defensible portfolio of three case studies.

Assessment. Three assessed case studies (60%), usability study report (20%), portfolio defence (20%).

D3 Data and AI Intensive

RTQF Level 5 equivalent | 5 months, full time | 500 contact hours | Entry: L2 to L3. Graduates with quantitative aptitude. | Delivery modes 1

To produce data practitioners who can take a question from a real organisation through to a deployed answer. Emphasis is placed throughout on working with imperfect, incomplete and small datasets, which is the condition of most real data work in the region.

MODULE	CHAPTERS COVERED	HOURS
Python for data	1. Language foundations. 2. Numerical computing. 3. Dataframes. 4. Reproducible notebooks and environments.	50
Data wrangling and SQL	1. Relational querying in depth. 2. Joining and aggregating. 3. Cleaning dirty data. 4. Handling missing and small data. 5. Pipelines.	70
Statistics and inference	1. Descriptive statistics. 2. Distributions. 3. Hypothesis testing. 4. Regression. 5. Interpreting results honestly.	60
Visualisation and communication	1. Chart selection. 2. Building dashboards. 3. Communicating uncertainty. 4. Presenting to non-technical decision makers.	50
Machine learning foundations	1. Supervised learning. 2. Model evaluation and validation. 3. Overfitting and regularisation. 4. Unsupervised methods. 5. Feature engineering.	90
Applied machine learning	1. Working with text and language data. 2. Time series. 3. Model deployment as a service. 4. Monitoring models in production.	70
Data engineering basics	1. Storage design. 2. Batch pipelines. 3. Scheduling and orchestration. 4. Data quality testing.	60
Ethics and governance	1. Bias and fairness. 2. Data governance. 3. Compliance with Law No. 058/2021. 4. Responsible deployment.	20
Capstone	1. End-to-end project on a real organisational dataset, defended before a panel.	30

ON COMPLETION THE GRADUATE CAN

- Take a business question through data to a defensible answer.
- Build, validate and deploy a machine learning model.
- Construct a reliable data pipeline.
- Communicate analytical findings and their uncertainty to decision makers.

Assessment. Project portfolio (40%), technical assessments (25%), capstone and panel defence (35%).

D4 Cybersecurity Entry Track

RTQF Level 5 equivalent | 4 months, full time | 400 contact hours | Entry: L2 to L3. Graduates with systems or networking aptitude. | Delivery modes 1

To produce analysts who can take an entry position in a security operations function. The programme is defensive in orientation throughout, is delivered in an isolated laboratory environment, and is governed by a signed ethical undertaking.

MODULE	CHAPTERS COVERED	HOURS
Systems and networking foundations	1. Network protocols and the stack. 2. Operating system internals. 3. Active Directory and identity. 4. Logging and telemetry sources.	70
Security fundamentals	1. Core security principles. 2. Access control models. 3. Secure configuration and hardening. 4. Vulnerability management.	60
Threat landscape	1. How attacks are actually structured. 2. Social engineering and phishing. 3. Malware behaviour and analysis basics. 4. Threat intelligence.	60
Defensive operations	1. Security monitoring and SIEM. 2. Log analysis and detection engineering. 3. Network defence. 4. Endpoint defence. 5. Practical operations exercises.	80
Applied cryptography	1. Cryptographic primitives. 2. Certificates and public key infrastructure. 3. Transport and storage encryption. 4. Key management.	40
Governance, risk and compliance	1. Risk assessment. 2. Security policy and standards. 3. Audit and assurance. 4. Law No. 058/2021 and national cybersecurity obligations.	50
Incident response	1. The response lifecycle. 2. Evidence handling. 3. Containment and recovery. 4. Post-incident reporting.	30
Assessment and certification preparation	1. Capstone exercise. 2. Industry certification preparation.	10

ON COMPLETION THE GRADUATE CAN

- Monitor, detect and triage security events in an operations environment.
- Assess and harden the configuration of a system.
- Conduct a structured incident response and report on it.
- Apply national data protection and cybersecurity obligations to an organisation.

Assessment. Laboratory exercises (35%), governance assignment (20%), capstone defensive exercise (45%). Ethical undertaking required before enrolment.

D5 Networks and Systems Administration

RTQF Level 5 equivalent | 4 months, full time | 400 contact hours | Entry: L2. Graduates and technicians entering infrastructure roles. | Delivery modes 1

To produce the technicians the country needs to connect and maintain the schools, health posts and offices that remain offline. Three modules are specific to the Rwandan operating environment and are not found in standard international curricula: physical cabling, rural connectivity, and power systems for ICT.

MODULE	CHAPTERS COVERED	HOURS
Networking fundamentals	1. The protocol stack. 2. Addressing and subnetting. 3. Switching concepts. 4. Network design principles.	80
Routing and switching	1. Router configuration. 2. Routing protocols. 3. VLANs and trunking. 4. Network security basics. 5. Troubleshooting methodology.	70
Linux system administration	1. Installation and configuration. 2. Users, permissions and services. 3. Shell scripting. 4. Backup and recovery.	70
Server and directory services	1. Server installation. 2. Directory services and identity. 3. File and print services. 4. Virtualisation basics.	40
Physical infrastructure	1. Structured cabling standards. 2. Termination and testing. 3. Rack and equipment installation. 4. Documentation and labelling discipline.	40
Rural and wireless connectivity	1. Wireless standards and planning. 2. Point-to-point links. 3. Satellite and alternative backhaul. 4. Designing a connection for a rural school.	40
Power systems for ICT	1. Power quality and protection. 2. UPS sizing and installation. 3. Solar and battery systems for ICT loads. 4. Maintaining equipment where supply is unreliable.	30
Monitoring and capstone	1. Network monitoring. 2. Fault diagnosis. 3. Capstone: design and document a complete school network.	30

ON COMPLETION THE GRADUATE CAN

- Design, install and document a small to medium network.
- Terminate and certify structured cabling to standard.
- Specify and install power protection appropriate to an unreliable supply.
- Connect a rural institution and maintain it thereafter.

Assessment. Practical installation assessments (45%), configuration assessments (25%), capstone school network design and defence (30%).

D6 Career Change into Technology

RTQF Level 5 equivalent | 10 months, full time | 900 contact hours | Entry: L1 to L2. Graduates of unrelated disciplines. | Delivery modes 1

To convert a graduate of an unrelated discipline into an employable technology professional. The programme is deliberately longer than the direct intensives because a law or agriculture graduate requires a genuine foundation stage; running career changers through a programme designed for computer science graduates fails both groups.

MODULE	CHAPTERS COVERED	HOURS
Stage 1: Bridge	1. Digital fluency to applied standard. 2. Mathematics refresh for computing. 3. Computational thinking. 4. Study habits and technical reading. 5. Introductory programming.	200
Stage 2: Core engineering	1. Programming in depth. 2. Data structures and algorithms. 3. Databases and SQL. 4. Web fundamentals, frontend and backend. 5. Version control and collaborative development. 6. Testing fundamentals.	400
Stage 3: Specialisation	1. Elective strand selected from software engineering, design, data, security or infrastructure. 2. Strand-specific tooling and practice. 3. Strand project.	200
Stage 4: Industry placement	1. Supervised placement with a partner employer. 2. Capstone deliverable. 3. Portfolio and interview preparation.	100

ON COMPLETION THE GRADUATE CAN

- Work to entry professional standard in a chosen technology specialisation.
- Demonstrate a portfolio built over ten months, including placement work.
- Articulate the value their prior discipline brings to a technology role.
- Enter employment without a computer science degree.

Assessment. Stage gates at the end of Stages 1 and 2 (pass required to progress), strand project (30%), placement assessment (30%), capstone and portfolio defence (40%).

11. Assessment and certification

Assessment in this framework serves three purposes at once: it certifies the learner, it improves teaching through feedback to the trainer, and it produces the verified progression record on which national reporting and outcome-based funding depend. Instrument selection follows the competence being assessed rather than administrative convenience.

INSTRUMENT	WEIGHTING RANGE	APPLICATION AND EVIDENCE RETAINED
Entry placement	Not graded	Establishes level and serves as the baseline measurement. Observational rubric at L0; practical task at L1 and above. Result retained as the comparator for exit assessment.
Continuous observation	20 to 40%	Trainer records performance against stated criteria each session. The primary instrument in Family A, where written assessment would measure literacy rather than competence.
Practical assessment	30 to 50%	Observed completion of a real task under assessment conditions. Evidence retained as trainer record and learner artefact.
Portfolio	20 to 60%	Accumulated learner work across the programme. The principal instrument in A3, A4, D2 and D6.

INSTRUMENT	WEIGHTING RANGE	APPLICATION AND EVIDENCE RETAINED
Written examination	0 to 40%	Applied only where the underlying competence is theoretical. Never used in Family A.
Exit assessment	Pass or fail	Assessed against the same rubric as entry placement. Generates the verified level progression record on which impact reporting and results-based financing depend.

11.1 Recognition of prior learning

Adult learners frequently hold competence acquired outside formal training. Any applicant may request assessment against a level without completing the programme below it. Where competence is demonstrated, the level is awarded and the learner is placed accordingly. This matters particularly in Family A, where an applicant may have acquired real capability through a workplace or a relative and should not be required to repeat it.

11.2 Moderation and integrity

Every assessment is recorded against the named trainer and the named learner, timestamped and retained. A master trainer moderates a minimum of 20 percent of assessments at each site each cycle, and all exit assessments in Family D. Trainers do not assess cohorts they have taught in Family D without moderation. Assessment records are retained for five years.

11.3 Certification

Three certificate types are issued: a statement of attainment recording the level achieved and the competences demonstrated; a programme certificate on full completion; and, for Family D, a certificate accompanied by an assessed portfolio and employer panel record. Every certificate carries a verification reference resolvable through the programme platform, so that an employer or institution can confirm it independently.

12. Trainer standards and development

The quality of this framework in practice is bounded by the quality of the people delivering it, and the scarcest capability in the system is not technical knowledge but the ability to teach an adult who is frightened of the machine. Trainer development is therefore treated as a permanent function.

TRAINER GRADE	MINIMUM QUALIFICATION	SCOPE AND DEVELOPMENT REQUIREMENT
Foundation facilitator	L2 competence, Digital Bridge trainer certificate, Kinyarwanda fluency.	Families A and B3. Must complete 40 hours of adult-learning methodology, including specific training in teaching learners who have never used a computer. 15 hours annual continuing development.
Applied trainer	Diploma or degree in a relevant field, plus L3 competence.	Families B1, B2 and C. Teaching practice observation twice yearly. 20 hours annual continuing development.

TRAINER GRADE	MINIMUM QUALIFICATION	SCOPE AND DEVELOPMENT REQUIREMENT
Specialist trainer	Degree plus a minimum of three years industry practice in the taught specialisation.	Family D. Must maintain active industry engagement. Curriculum currency review every six months.
Master trainer	Specialist or applied grade plus assessor certification.	Trains and certifies facilitators, moderates assessment, approves new delivery sites. One per hub minimum.

The teacher programmes function as the principal recruitment pipeline for foundation facilitators. Graduates of B1 and B2 are trained educators who already work in the communities Family A serves and who teach in Kinyarwanda as a first language. This is a structural advantage the framework is designed to exploit deliberately.

13. Licences and approvals sought

AUTHORITY	INSTRUMENT SOUGHT	SCOPE OF THE REQUEST
Rwanda TVET Board	Training centre accreditation and curriculum approval	Accreditation of the Kigali flagship hub as a training centre, approval of the sixteen curricula against RTQF levels, and approval of the assessment and certification scheme.
Ministry of Education and REB	Partnership authorisation for school-based delivery	Authorisation to deliver Families B1, B2 and B3 within school premises and school hours, and recognition of teacher programmes as continuing professional development.
Ministry of ICT and Innovation, and RISA	Programme recognition and delivery partnership	Recognition of Digital Bridge as a contributing delivery partner against national digital literacy targets, with reporting into national monitoring.
National Cyber Security Authority, Data Protection Office	Data controller registration	Registration as a data controller for learner records, with a data protection impact assessment covering placement, assessment and demographic reporting.
District authorities	Site operating permission	Permission to establish district hubs and to operate mobile units within each district of delivery.

14. Inclusion provisions

- Language. Families A and B are delivered in Kinyarwanda. Materials exist in Kinyarwanda, English and French. No learner is excluded from foundation provision by language of instruction.
- Disability. All materials meet WCAG 2.1 Level AA where digital. Foundation rooms are specified with level access. Screen reader and magnification configuration is standard on foundation room devices, and trainers are trained in their use. A standing accessibility fund meets the additional cost of interpretation, adapted materials and accessible transport, and is available to any learner irrespective of whether their place is sponsored or paid for.

- Gender. Cohort composition is monitored and reported. Where uptake among women falls below parity at a site, women-only cohorts and daytime scheduling are introduced as standard remedies.
- Age. No programme carries an upper age limit. Adult foundation cohorts are age-banded, with learners over thirty grouped separately from those aged sixteen to twenty-four, because adults do not risk visible incompetence in front of teenagers.
- Refugees and displaced learners. Identity verification accepts proof of registration and equivalent documentation. No programme in Family A requires a national identity document to enrol.
- Cost. Families A and B3 are free at the point of use. A3 and A4 carry a nominal fee waivable on request without means testing, because a means test is itself a barrier at this level. Eligibility screening applies only to sponsored places in Families C and D, where a place carries significant value.
- Route. Sponsored and paying learners receive identical teaching, assessment and certification. Route determines who pays for a place; it never determines the standard of the place, the level a learner may enter, or the programmes open to them.

15. Progression pathways

No programme is a terminus. Every completion leads somewhere, and the pathway is stated to the learner at enrolment rather than discovered at the end.

- A1 to A2 to A3 or A4. A learner who has never used a computer can reach employment-ready digital capability in six months of part-time study.
- A3 to C2 to D1 to D6. The full ladder from L0 to professional employment is open and continuous, which is the framework's central claim.
- B1 to B2 to foundation facilitator certification. A teacher can progress from no digital skill to certified trainer, and the framework actively recruits along this path.
- B3 to B4 or C1. A pupil reached by a mobile unit can enter the academic bridge on the same terms as a pupil from an equipped school.
- C1 to advanced secondary computer science; C2 to university; D1 to D5 to employment; D6 to specialisation and placement.

16. Curriculum governance and review

A curriculum committee chaired by the master trainer cadre and including an employer representative, a serving teacher and a learner representative reviews the framework on a fixed cycle. Family D modules are reviewed every six months against industry practice and employer feedback. Families A to C are reviewed annually. Any change to assessed content requires committee approval and, where it affects an accredited qualification, notification to the Rwanda TVET Board.

Delivery quality is monitored through four standing measures: learner progression from entry to exit level, completion rate by programme and site, trainer observation scores, and employer feedback for Family D. Each is reported quarterly, disaggregated by site, gender, age band and entry level.

17. Assumptions and verification

- RTQF equivalence is proposed, not held. Level assignments in this framework represent CODAFRIQA's assessment of equivalence and are submitted for confirmation. No accreditation is claimed as existing.

- Statistics require primary sourcing. The 12.8 percent, 6.6 percent and 44 percent figures are drawn from secondary reporting of MINICT, NISR and World Bank sources. Each requires tracing to its primary publication, with measurement year and definition stated, before external citation.
- Contact hours are specified for Mode 1 delivery. Modes 2 and 3 extend contact hours as described in section 6 without altering assessed outcomes.
- Certification recognition is contingent on the approvals sought in section 13 and is not asserted in advance of them.
- Industry currency. Family D module content reflects practice as at the date of issue and is subject to the six-monthly review cycle in section 16.

18. Closing statement

Rwanda has built the infrastructure. What remains is the harder and slower work of building the capability to use it, and that work is not done by distributing equipment. It is done by teaching a person who is frightened of a keyboard that the machine will not break, and then by teaching them something worth knowing.

This framework is designed around that person. It begins below the level at which conventional curricula start, it can be delivered in a classroom with no computers in it, and it leads without interruption from a first day at a keyboard to professional employment. It is offered to the Government of Rwanda not as a proposal for a private venture, but as a curriculum the country may use.

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