

Occupation and Learning Process

WEEK 1 - Introduction to Occupation and Learning Process

University: Rwanda Polytechnic - Tumba College

Lecturer: NSHIMIYIMANA Arcade

Ice breaker

- In two minutes, each student will think about the career aspiration and be ready to share with others.
 - As a Technician, think of a time when you failed a task and felt disappointed, when was that time, what was the task and how did you go out of that situation?
 - Each student will think of three (3) expectations at the completion of the program.
-

Purpose statement

- This module describes the skills, knowledge and right attitudes required to match the learning process with occupation, develop action plan to meet occupation standards and relate occupation with the labor market demand.
 - The module is intended for trainees/students pursuing Advanced Diploma in all engineering trades for them to identify the occupation and its learning processes. They will also be able to integrate in the working environment, set out the goals to perform the occupation and self-assessment.
 - The module encourages greater motivation and, subsequently, a better integration of various learning styles for students to independently develop a comprehensive and clear vision of the occupation and training programme at professional level.
-

General information of the course

- The course “Occupation and Learning Process” is taught in semester one to students of Level Six Year one (L6 Y1) in Electrical and Electronics Engineering department.
 - It introduces first-year students to the fundamental concepts and principles of occupation, learning, and processes management within the context of technical services; particularly in Electrical, Electronics, Telecommunication and ICT fields.
 - It emphasizes understanding workplace dynamics, occupational roles, learning pathways, and technical service delivery in alignment with Rwanda TVET policies, NST1 and NST2, Vision 2050, and Global Industry 4.0 standards.
-

General information of the course cont'd

- The course has 3 credits of 30 teaching hours including sessions' delivery, in-course assessments such as quizzes and assignments as well as the final exam to evaluate the competency.
 - This course introduces to learners, the workflow during the learning process in relation with the Occupation to ensure they are successful in their careers.
 - Students are equipped with the learning styles guiding their career and professional development being at College as well as at the Workplace.
 - Available opportunities in the field are subject of discussion for awareness and insights of the field of study as a motivation tool for a competent graduate.
-

Elements of competency or Learning Units (LUs)

Learning units describe the essential outcomes of a competency.

1. Match learning process with occupation
2. Develop action plan to meet occupation standards
3. Relate occupation with the labor market demand

Each element of competency or learning unit (mostly used) is associated with at least three (3) learning outcomes.

Performance criteria or learning outcomes

Performance criteria describe the required performance needed to demonstrate the achievement of the learning unit.

- Effective orientation to the trainees to discover their talents, interests, strengths and weaknesses according to the occupation.
- Proper engagement of the trainees in learning process according to the occupation standards.
- Adequate description of the assessment procedures according to the occupation standards.

Match learning process with occupation

Performance criteria or learning outcomes cont'd

- Correct setting of own learning goals in line with occupation standards.
 - Proper development of action plan basing on occupation standards.
 - Adequate self-evaluation and reflection on learning achievement basing on action plan. **Develop action plan to meet occupation standards**
 - Proper description of the main/major elements of occupation according to the labor market demand.
 - Clear explanation of rationale of the qualification to be achieved according to the labor market demand.
 - Clear linkage of one's qualification level in accordance with the labor market demand. **Relate occupation with the labor market demand**
-

Objectives

At the end of this session, students will be able to:

1. Understand the concepts of Occupation and Learning Process (OLP)
2. Understand various terminologies used in CBT-A
3. Locate the Occupation in the sector of technical Services

This course builds a foundation for students to succeed in technical fields by integrating both theoretical knowledge and practical applications relevant to Rwanda's industrial development.

Rationale

1. OLP concepts

- An **occupation** is a person's regular work or profession, especially one that requires specific training, skills, or education. It is the role or job that an individual performs to earn a living.
 - Occupation also refers to understanding different technical occupations and career paths in the industry. It is an activity, a task, a service, a trade, a craft, or a job; by which one is paid for.
 - **Learning**: Applying lifelong learning strategies and competency-based approaches to skill development. It is also the acquisition of **knowledge**, **skills**, and **attitude change** through self study, experience, or being taught.
 - **Process**: Understanding how tasks and workflows are structured in technical services.
-

1. OLP concepts cont'd

- **The learning process** refers to the systematic acquisition of knowledge, skills, attitudes, and competencies through education, training, experience, and practice.
 - **Learning** is the **process** of acquiring new understanding, knowledge, behaviours, skills, values, attitudes, and preferences.
Briefly, Learning process is the way or procedure of gaining new skills and expertise.
 - **Importance of learning process:**
 - Helps in achieving the objectives
 - Change in the behaviour of the individuals
 - Development of knowledge, insight, interests, skills, and attitudes
-

1. OLP concepts cont'd

- **Training:** The action of teaching a person to perform a skill according to standards or type of behaviour.
 - **Transfer of learning:** Ensuring that all the knowledge and skills acquired are applied on the job, resulting in higher level performance and quality of services provided.
 - **Technical Services:** Applying theory to real-world contexts like electrical installation, electronics and telecommunications maintenance, and modern digital technologies. (Rwanda Polytechnic Strategic Plan (2019–2024), Rwanda Polytechnic, Ministry of Education, Republic of Rwanda, 2019, pp. 44–48.)
-

1.1 Characteristics of an Occupation

- **Professional appearance (always clean)**
 - **Reliable** (do and don't overpromise, walk the talk)
 - **Ethical behaviour** (doing right thing, respect code of conduct)
 - **Organized** (keep workspace neat (clean), everything in its place)
 - **Accountable** (taking responsibility)
 - **Professional language** (minimize the use of slang and avoid using inappropriate language in the workplace.)
 - **Separates personal and professional**
 - **Positive attitude** (maintaining a positive spirit and good understanding)
-

1.1 Characteristics of an Occupation cont'd

- **Emotional control (stay calm in all situations)**
 - **Effective time management**
 - **Be Focused** (know what you need to achieve your goals)
 - **Poised** (Stay calm and confident under pressure. Making eye contact when communicating and helping establish a friendly and professional presence)
 - **Respectful of others** (treat others with respect)
 - **Strong communicator** (conveying messages to others and actively listening and understanding what others tell you)
 - **Possesses soft skills** (interact effectively with others.)
-

1.2 Learning Process and the Sector

- Considering the learning process, what are the possible jobs after school?
 - To list few: Plant Operator, Technical Educator, Maintenance Technologist, Technologist owning a business, Network Administrator, Lab Technician, Technical Manager, Media Operator, PCB Engineer, IoT System Architect, RF Engineer, Technical Support Service provider in all sectors connected to Electronics and Telecommunication, Etc.
 - The working condition considers: Hygiene factor, Health and Safety, Remuneration, Profit sharing, Employee benefits, Responsibility and accountability, Workload, Work schedule, Organizational structure, Employment terms. (TVET Programs and TVET Opportunities, Rwanda TVET Board, Rwanda TVET Board, 2025, pp. 12–18.)
-

1.2 Learning Process and the Sector cont'd

- **Requirements for a desired graduate:** Knowledge, Engineering skills, Right attitudes.
 - **Motivation to learn:** Trainees' beliefs and values, Self-efficacy (*social influence based on past experiences*), Interest, Importance of goals.
 - **Challenges to engage trainee:** Cognitive view of learning (thinking), Motivating trainees, Reflections on lessons (giving and receiving feedbacks).
 - **Characteristics of engaged trainee:** Committed, Attentive, Persistent, Connected.
 - **Interaction with trainees:** Communicating with trainees/trainers, Assessment instructions, Demonstrating flexibility and responsiveness.
-

1.2 Learning Process and the Sector cont'd

- **Work Role:** An occupation is the specific role or set of responsibilities that a person takes on in the workforce. Occupations are essential for fulfilling various needs, from healthcare and education to engineering and business.
 - **Skill and Knowledge Requirement:** Most occupations require a certain level of education, training, and expertise in a particular field.
 - **Professional Identity:** Occupations often form a significant part of an individual's identity and social status.
 - **Economic Contribution:** Occupations contribute to the economy by providing goods, services, and innovations that drive economic growth.
 - **Knowledge Acquisition:** Involves the process of learning facts, theories, and concepts.
-

1.2 Learning Process and the Sector cont'd

- **Skill Development:** Focuses on gaining practical abilities and techniques necessary to perform tasks effectively.
 - **Attitude Formation:** Includes shaping behaviours, values, and mindsets that are important for personal and professional growth.
 - **Continuous Improvement:** The learning process is ongoing, involving continual updating and refining of knowledge and skills to keep pace with changes in the field.
 - **Alignment:** The learning process is often designed to prepare individuals for specific occupations by providing the necessary knowledge, skills, and attitudes.
-

1.2 Learning Process and the Sector cont'd

- **Career Development:** Through the learning process, individuals acquire the competencies needed to enter and succeed in their chosen occupations
 - **Adaptation:** The learning process must be adaptable to changes in occupations, such as new technologies, methodologies, or industry standards, ensuring that individuals remain relevant in their fields.
 - **Professional Growth:** Lifelong learning is essential for advancing in one's occupation, enabling continuous professional development and career progression.
 - In essence, the learning process equips individuals with what they need to excel in their occupations, while the demands of an occupation shape the content and methods of the learning process.
-

2. Terminologies in CBT-A

- Competency-Based Training (CBT) and Competency-Based Assessment (CBA) use specific terms that help trainers, assessors, and learners understand the process of skill development, evaluation, and certification.
 - **Competence:** Ability to do something **successfully** and **efficiently**, according to **set standards**.
 - A competent person has the required: Knowledge that they can apply, Skills that they perform according to set standards and Positive attitude for the job.
 - Having a positive attitude means being **optimistic** about **situations**, **interactions**, and **yourself**. People with positive attitudes remain hopeful and see the best even in difficult situations.
-

2. Terminologies in CBT-A cont'd

- **Competency:** The ability to perform a specific task or job role to the required standard, demonstrated through knowledge, skills, and attitudes in the workplace or simulated environment.
 - **Element of Competency:** A component of a unit of competency that breaks down the overall task into smaller, manageable outcomes.
 - **Performance Criteria (PC):** Clear and measurable statements specifying the standard required to demonstrate competence for each element of competency.
 - **Competency Standard:** A formal document specifying the required competencies for a specific occupation or job role within an industry.
-

2. Terminologies in CBT-A cont'd

- **Assessment Criteria:** The specific benchmarks used by assessors to judge whether a learner's performance meets the competency standard.
 - **Assessment Criteria:** The specific benchmarks used by assessors to judge whether a learner's performance meets the competency standard.
 - **Portfolio of Evidence:** A collection of documents and materials compiled by the learner to demonstrate competency.
 - **Certification:** Formal recognition awarded to learners who have demonstrated competence against set standards.
 - **Competence Based Curriculum (CBC)** is a framework or guide for the subsequent detailed development of competencies, methodologies, training and assessment resources.
-

2. Terminologies in CBT-A cont'd

- The qualification of Electronics and Telecommunication Technology was designated as Electronics and Telecommunication Assistant Technologist.
- The pathways were defined as into and from under the following conditions:

- Pathways **into** the qualification: Having qualification level 5 in Electronic Services, Telecommunication Technology or General Education with combinations as MPC, MPG, PCM, etc.
- Pathways **from** the qualification: Being able to enter the Advanced Diploma in Electronics and Telecommunication Technology or any other related degree programs

(<https://www.elearning.rtb.gov.rw/course/view.php?id=850>)

3. Occupation in the Sector

- The sector of Technical Services targets Industries operating with Electronic appliances (devices and equipment) as well as Telecommunication Systems. In the job analysis, the following are done:
 - **Skills and Competencies:** Identify the specific skills, knowledge, and abilities required for the occupation.
 - **Tasks and Responsibilities:** Understand the daily tasks, duties, and challenges associated with the job.
 - **Industry Standards:** Be aware of any certifications, qualifications, or standards necessary for the occupation.
-

3. Occupation in the Sector cont'd

- In the design of the Learning Process related to Occupation, the Curriculum Development insists on Occupation-Specific Content by developing a curriculum that includes the theoretical knowledge and practical skills relevant to the occupation as well as Competency-Based Learning by focus the learning process on developing competencies that are directly applicable to the job. (<https://www.rtb.gov.rw/curriculum-instructional-materials-development-department>)
 - The Learning Objectives should ensure the alignment with Job Skills: by setting learning objectives that align with the skills needed in the occupation as well as Outcome-Focused by ensuring that the learning outcomes prepare students for real-world job tasks and responsibilities.
-

3. Occupation in the Sector cont'd

- Teaching methods should focus on:

Hands-On Training by incorporating practical training opportunities, such as labs, workshops, internships, and simulations, that mimic real-world occupational tasks.

Project-Based Learning using projects that reflect actual challenges and tasks encountered in the occupation.

Case Studies to analyse case the occupation to help learners apply theoretical knowledge to practical situations.

3. Occupation in the Sector cont'd

- The assessment and evaluation focus on Performance-Based Assessment.

Real-World Tasks: Assess learners by having them complete tasks that are directly related to the occupation, such as design projects, problem-solving exercises, or practical exams.

Continuous Feedback: Provide ongoing feedback to ensure learners are progressing toward meeting the occupational requirements.

- Collaboration with industries focuses on partnerships and placements

Internships and Apprenticeships: Partner with industry professionals and companies to provide learners with real-world experience through internships or apprenticeships.

3. Occupation in the Sector cont'd

Guest Lectures and Workshops: Invite industry experts to conduct guest lectures, workshops, or seminars to expose learners to current industry practices and trends.

Career Services: Offer job placement and networking opportunities to help learners transition from education to employment in their chosen occupation.

Industry Input: Involve industry professionals in curriculum development to ensure the learning process remains relevant and up-to-date.

- Occupation and Learning Process ensure education and training are relevant and directly applicable to the workplace, preparing individuals to enter the workforce with enough skills, knowledge, and attitudes succeed in their followed careers.
-

4. Collaboration successful stories

- Students and graduates in Technical Services Sector specializing in Electronics and Telecommunication benefit from collaboration with Industries, Private and Government and Non-Government Institutions through; Open Challenges, IA Placements, Professional Internships, Job Placements, Research and Innovations, among others.
 - Students and graduates from the ETT department/program at Tumba College have consistently excelled in national and regional competitions.
 - For example, ETT students have won awards in areas such as PCB design, IoT systems, and telecommunication troubleshooting, highlighting the practical competencies and innovation fostered within the department.
-

4. Collaboration successful stories cont'd

- In terms of employment, a study conducted by Regis Musigwa and Dr. Hesbon Opiyo Andala revealed that 68.4% of Tumba College graduates are employed in private organizations, with a significant portion coming from the ETT department. (Technical and Vocational Education Training Skills and Youth Employment in Rwanda: A Case Study of Tumba College of Technology, Regis Musigwa & Dr. Hesbon Opiyo Andala, IOSR Journal of Research & Method in Education, 2020, pp. 48–59.)
 - Question: Insights on how you can be successful, list at least 3 Companies or Institution of your choice that you dream working for or with.
-

4. Collaboration successful stories cont'd

- Some companies with Sector Profile: Zipline Rwanda, RURA, TRES Rwanda (Infrastructure), Havillah Engineering Company Ltd, Liquid Telecom, ZTE, ERICSON, KTRN, Canal+, StartTimes, Tele10, RBA, MTN, AirTel-Tigo, Bralirwa, Skol, Inyange Industries, REG, G&NGOs like Ministries, Districts, Universities, Colleges, RISA, RRA, GIZ, KOICA, Embassies, Private and community Radios, etc.
 - Research and Innovation collaboration opportunities: TVET Youth Challenge (every year by the Ministry of Youth and Arts), Skills Competitions, etc.
 - Other possible opportunities are available at NCST, NIRDA, etc.
-

References

1. Rwanda Polytechnic Strategic Plan (2019–2024), Rwanda Polytechnic, Ministry of Education, Republic of Rwanda, 2019, pp. 44–48.
 2. TVET Programs and TVET Opportunities, Rwanda TVET Board, Rwanda TVET Board, 2025, pp. 12–18.)
 3. TVET Teacher’s Pedagogical Training Material, Rwanda TVET Board, Rwanda TVET Board, 2023, pp. 45–52.
 4. TVET Curriculum Development Framework, Rwanda TVET Board, Ministry of Education, Republic of Rwanda, 2021, pp. 22–24.
 5. Technical and Vocational Education Training Skills and Youth Employment in Rwanda: A Case Study of Tumba College of Technology, Regis Musigwa & Dr. Hesbon Opiyo Andal, IOSR Journal of Research & Method in Education, 2020, pp. 48–59.)
-