Republic of Rwanda
Ministry of Education

RTB | RWANDA TVET BOARD

SPEPL401

Project Based Learning

Apply Project-based Learning Approaches

Competence

RQF Level: 4

Learning Hours: 80

Credits: 8

Sector: ICT and Multimedia

Trade: Software Programming and Embedded Systems

Module Type: Specific Module

Curriculum: ICTSPE4002 TVET Certificate IV in Software Programming and Embedded Systems

1200

Issue Date: August 2023

<table>
<tr><td>Purpose statement</td><td colspan="5">This module aims to equip learners with knowledge and skills necessary, involving students working on a real-world problem or challenge over an extended period of time. Allows students to apply their knowledge and skills in a practical way, and to develop critical thinking, problem-solving, collaboration, communication skills and creativity. By the end of this module, learners will be able to identify the project, implement the project, evaluate Implemented project.</td></tr>
<tr><td>Learning assumed to be in place</td><td colspan="5">N/A</td></tr>
<tr><td rowspan="6">Delivery modality</td><td colspan="2">Training delivery</td><td>100%</td><td colspan="2">Assessment</td><td>Total 100%</td></tr>
<tr><td colspan="2">Theoretical content</td><td>30%</td><td rowspan="3">Formative assessment</td><td>30%</td><td rowspan="3">100%</td></tr>
<tr><td colspan="2">Practical work:</td><td rowspan="3">70%</td><td rowspan="3">70%</td></tr>
<tr><td>Group project and presentation</td><td>30%</td></tr>
<tr><td>Individual project /Work</td><td>40%</td></tr>
<tr><td colspan="3"></td><td colspan="2">Summative Assessment</td><td>N/A</td></tr>
</table>

Elements of Competence and Performance Criteria

Elements of competency	Performance criteria
1. Identify the project	1.1 The problem or question is properly identified based on project ideas perception.
	1.2. SRS and feasibility study of the project is developed based on the project management process.
	1.3. The problem is well broken down into smaller tasks-based on project management approaches
2. Implement the project	2.1. Project plan is properly created based on project management approaches.
	2.2. Project team members, task allocation, communication channels, setting project management tools are properly organized in line with the project implementation process.

	2.3. Execute project, monitoring and control the project progress are properly performed based on the project management approaches.
3. Evaluate Implemented project	3.1. Evaluation criteria table is well cross checked based on the checklist requirements.
	3.2. Implemented projects are effectively assessed based on the evaluation criteria checklist.
	3.3. Pitching is appropriately evaluated based on the outlined project evaluation criteria.

Intended Knowledge, Skills and Attitude

Knowledge	Skills	Attitude
✓ Identify the problem ✓ Communicate to the team member ✓ Describe the Software Requirements Specifications ✓ Explain the tasks to the team ✓ Identify the project management tools	✓ Develop Software Requirements specifications ✓ Perform feasibility study of the project ✓ Break the project into small manageable task based. ✓ Establish the project plan ✓ Organize team ✓ Allocate tasks ✓ Select the right tools for project Management ✓ Set up the project Management tools ✓ Execute, monitor and control the project. ✓ Assess the evaluation criteria ✓ Evaluate the project pitching	✓ Use creativity and innovation throughout the project development. ✓ Collaborate with team members to achieve the expected outcomes

Course content

Learning outcomes	At the end of the module the learner will be able to: 1.Identify the project Plan 2. Implement the project 3. Evaluate implemented projects
Learning outcome 1: Identify the project Plan	**Learning hours: 20**

Indicative content

- **Problem identification**
  - Project ideation phase
  - Define the problem or opportunity
  - Problem statement
  - Objective
  - Scope
  - Gathering data to stakeholders
- **SRS and feasibility study**
  - Feasibility study
  - Develop SRS
- **Problem Breakdown**
  - Determine the scope of the project
  - Identify the major deliverables
  - Assign tasks to team members
  - Track progress and make adjustments as needed

Resources required for the learning outcome	
Equipment	-White board, chalkboard, radio, projector, computer laptop
Materials	-Markers, pieces of chalk, markers, flipcharts, pen, pieces of paper
Tools	-Reference books, trainee manual
Facilitation techniques	-Brainstorming, Demonstration, group work, practical exercise, group discussion
Formative assessment methods /(CAT)	-Written assessment, Oral assessment

Learning outcome 2: Implement the project	**Learning hours:40**

Indicative content

- **Project plan**
    - Create a project charter
    - Create a project schedule
    - Create a budget
    - Identify risks
    - Develop a contingency plan
    - Estimate the time and resources needed for each task
    - Break down the major deliverables into smaller tasks
    - Create a work breakdown structure (WBS)
- **Project organization**
    - Setting of project team members and Roles
    - Allocating tasks to team members
    - Identify communication channels
    - Identify project management tools
- **Project execution**
    - Communicating with stakeholders
    - Managing changes
    - Identify monitoring and controlling tools
    - Working on the project

RESOURCES REQUIRED FOR THE LEARNING OUTCOME

Equipment	• White board, chalkboard, radio, projector, computer laptop •
Materials	• Markers, pieces of chalk, markers, flipcharts, pen, pieces of paper
Tools	• Reference books, trainee manual
Facilitation techniques	• Brainstorming, Demonstration, group work, practical exercise, group discussion
Formative assessment methods /(CAT)	• Written assessment, • Oral assessment

Learning outcome 3: Evaluate implemented a project.	**Learning hours:20**
Indicative content	

- **Establishment of evaluation criteria**
    - Review the Criteria Definition
    - Check Consistency
    - Verify Weightage and Importance
    - Validate Scoring Methodology
    - Review Calculation Logic
    - Test Sample Data
    - Involve Multiple Reviewers
    - Address Any Discrepancies
    - Document Cross-Checking Process
    - Seek Feedback
    - Continuous Improvement
- **Establishes evaluation criteria checklist.**
    - Develop evaluation criteria checklist
- **Evaluation of the software project pitches**
    - Context
    - Evaluation Criteria
    - Pre-Screening
    - Assessing Value Proposition
    - Market and Competitive Analysis
    - Technical Feasibility

Resources required for the Learning outcome

Equipment	• -White board, chalkboard, radio, projector, computer laptop •
Materials	• Markers, pieces of chalk, markers, flipcharts, pen, pieces of paper
Tools	• Reference books, trainee manual
Facilitation techniques	• Brainstorming, • Demonstration • Group work • Practical exercise • Group discussion
Formative assessment methods /(CAT)	• Written assessment • Oral assessment

References:

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