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| **Unit of Competency:** Develop Computer Program | **Unit Code:** ICT/CU/IT/CR/5/5 | |
| **Name of Trainer: DUNCAN NDEGWA** | **TRAINER Number:** | |
| **Institution: LAIKIPIA EAST TVC** | **Level:** LEVEL 5 | |
| **Date of Preparation: 22/4/2025** | **Date of Revision:** | |
| **Number of Trainees: 2** | **Class: CICT/S23** | |
| **TOTAL UNIT HOURS: HOURS: 300HRS** | **NUMBER OF SESIONS: 10 OF 4HRS** | |
| **Skill or Job Task:**  To Develop Computer Program | |
| **Benchmark or Criterial to be used**   1. **Identify Programming concepts and approaches *(This is element as stated in the OS)***    1. Identification of program and programming is done and ***translators*** are identified    2. Description of ***programming approaches*** is done 2. **Identify program development methodologies**    1. Description of program specifications is done    2. Application of program development cycle is done    3. Types of development methodologies are identified    4. Sty***les of programming*** are identified 3. **Identify Program design**     1. Description of Program design is done    2. ***Program design approaches*** are identified    3. ***Program design tools*** are identified 4. **Identify computer programming languages**     1. Generations of programming languages are Identified    2. Factors for choosing a programming language are determined    3. Basic tools for program development are identified 5. **Perform Basic structured Programming using C language**     1. Fundamentals of C programming are identified    2. ***Control structures*** in C programming are identified    3. Sub programs of C language are explained    4. ***C language concepts*** are identified    5. C programming environment is identified    6. Description of sub programming    7. C program format is explained 6. **Perform Basic Internet programming**     1. Internet based programming concepts are identified    2. Web programming approaches are identified    3. Web programming languages are identified    4. Web programming interfaces are identified    5. HTML coding is done | |

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| **Week** | **Session No** | **Session Title** *(Obtained from the PCs)* | **Session Learning Outcome** *(Based on the content to be covered in the session)* | **Trainer**  **Activities** | **Trainee**  **Activities** | **Resources & Refs** | **Learning Checks/ Assessments** | **Reflections & Date** |
|  |  | C language concepts | By the end of the session, the trainee should be able to:   1. **Explain** the characteristics of C 2. **Explain** pre-processor directives | *(each* ***learning outcome*** *can attract more than 1 activity)*  *Trainer*   * Pose questions on the characteristics of C * coordinate group discussion | *(each* ***learning outcome*** *can attract more than 1 activity)*  *Trainee*   * give responses to questions posed * identify the characteristics of C * identify pre-processor directives | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation | ***Remark about the session (done after end of learning/training session)*** |
|  | C language concepts (C Headers) | By the end of the session, the trainee should be able to:   1. **Explain** C headers 2. **Identify** C headers | * Pose questions on C headers * coordinate group discussion | * give responses to questions posed * identify C headers | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**   1. observation |  |
|  |  | Format of a C program | By the end of the session, the trainee should be able to:   1. Describe the basic format of a C program | * Pose questions on C program format * Coordinate group discussions * Demonstrate the format of a simple C program | * give responses to questions posed * observe how to format a simple C program * practice how to how to format a simple C program | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**  observation |  |
|  | C programming Environment | By the end of the session, the trainee should be able to:   1. **Describe** the basic features of a programming environment 2. **Use** the programming environment to create a simple program | * Pose questions on programing environment * Demonstrate how to create, run, compile and debug a simple C source code | * give responses to questions posed * observe how to create, run, compile and debug a simple C source code * practice how to create, run, compile and debug a simple C source code | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**  observation |  |
|  |  | Fundamentals of C programming (Output statement) | By the end of the session, the trainee should be able to:   1. **Explain** the workingmechanism of printf() 2. **Print** output on the terminal | * Pose questions on printing output on the terminal * Coordinate group discussions * Demonstrate on how to printing output on the terminal | * Observe the demonstration * Practice how to print output on the terminal | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**   1. observation |  |
|  | Fundamentals of C programming (Input statement) | By the end of the session, the trainee should be able to:   1. **Explain**the workingmechanism of scanf() 2. **capture** input from the keyboard | * Pose questions on capturing input * Coordinate group discussions * Demonstrate on how to capture input from the keyboard | * Observe on the demonstration on how to capture input from the keyboard * Practice on how to capture input from the keyboard | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**  1. observation |  |
|  |  | Fundamentals of C programming (Comments) | By the end of the session, the trainee should be able to:   1. **Explain**the use of comments 2. **Add** comments to a C source code. | * Pose questions the uses of comments * Coordinate group discussions * Demonstrate on how to use comments to describe and debug a code. | * Observe on the demonstration * Practice on how to add comments | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**  1. observation |  |
|  | Variables and Literals | By the end of the session, the trainee should be able to:   1. **Define** a variable and a literal 2. **Explain**the rules for naming variables 3. **Declare** a constant variable | * Pose questions on definition of a variable and rules of naming variables * Coordinate group discussions * Demonstrate on how to declare a constant variable | * give responses to questions posed * Participate in group discussion * Observe on the demonstration of how to declare a constant variable | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**   1. observation |  |
|  |  | CAT 1 |  | | | | |  |
|  |  | Basic Data Types | By the end of the session, the trainee should be able to:   1. **Explain**the meaning of data type 2. **Select** an appropriate data type for a variable 3. **Declare** variables of type int, double, float, char | * Pose questions on different data types and their uses * Coordinate group discussions * Demonstrate on how to declare variables of different data types | * give responses to questions posed * Participate in group discussion * Observe on the demonstration of how to declare variables | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**   1. observation |  |
|  | Derived Data Types | By the end of the session, the trainee should be able to:   1. **Explain**the meaning of derived data type 2. **Declare** variables of derived data types | * Pose questions on different derived data types and their uses * Coordinate group discussions * Demonstrate on how to declare variables of derived data type | * give responses to questions posed * Participate in group discussion * Observe on the demonstration of how to declare variables | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**   1. observation |  |
|  |  | Escape Sequences and Keywords | By the end of the session, the trainee should be able to:   1. **Explain**the use of escape sequences 2. **Identify**  C keywords 3. **Use** escape sequences to print special characters | * Pose questions on escape sequences and keywords * Coordinate group discussions on escape sequences and keywords * Demonstrate on how to type on escape sequences | * give responses to questions posed * Participate in group discussion * Observe on the demonstration * Practice on how to type on escape sequences | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**   1. observation |  |
|  | C Arithmetic Operators | By the end of the session, the trainee should be able to:   1. **Explain** the use of arithmetic operators 2. **Explain** the precedence of arithmetic operators 3. **Perform** Addition, subtraction, multiplication | * Pose questions on definition arithmetic operators and their precedence * Coordinate group discussions on arithmetic operators and their precedence * Demonstrate on how to perform addition, subtraction, multiplication | * give responses to questions posed * Participate in group discussion * Observe the demonstration * Practice how to perform addition, subtraction, multiplication | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**   1. observation |  |
|  |  | C Arithmetic Operators | By the end of the session, the trainee should be able to:   1. **Perform** division and modulo operations in C | * Demonstrate on how to perform division and modulo operations in C | * give responses to questions posed * Participate in group discussion * Observe the demonstration * Practice how perform division and modulo operations in C | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**   1. observation |  |
|  | Unary increment/decrement operators | By the end of the session, the trainee should be able to:   1. **Explain** the use of unary increment operators 2. **Perform** unary increment and decrement | * Pose questions on unary increment and decrement * Coordinate group discussions * Demonstrate on how to use unary increment operator | * Observe the demonstration * Practice how perform division and modulo operations in C | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**   1. observation |  |
|  |  | CAT 2 | | | | | |  |
|  |  | Relational operators | By the end of the session, the trainee should be able to:   1. **Explain** the use of relational operators 2. **Use** ==, != , >, < operators | * !,&&, || Demonstrate on how to use ==, != , >, < operators | * Observe the demonstration * Practice how on how to use ==, != , >, < operators | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**  1. observation |  |
|  | Relational operators | By the end of the session, the trainee should be able to:   1. **Explain** the use of relational operators 2. **Use** >=,=< operators | * Demonstrate on how to use >=,=< operators | * Observe the demonstration * Practice how on how to use >=,=< operators | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**  1. observation |  |
|  |  | Logical operators | By the end of the session, the trainee should be able to:   1. **Explain** the use of logical operators 2. **Use** !, &&, || operators | * Pose questions logical operators * Coordinate group discussions * Demonstrate on how to use !, &&, || operators | * Observe the demonstration * Practice how on how to use >=,=< operators | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**  1. observation |  |
|  | Control Structures (if statement) | By the end of the session, the trainee should be able to:   1. **define** control structures 2. **describe** the syntax of if statement 3. **Use** if statement in code | * Pose questions on control structures * Coordinate group discussions * Demonstrate on how to use the if statement | * give responses to questions posed * Participate in group discussion * Observe on the demonstration * Practice on how to use the if statement | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**   1. observation |  |
|  |  | Control Structures (if-else statement) | By the end of the session, the trainee should be able to:   1. **describe** the syntax of if-else statement 2. **Use** if-else statement in code | * Pose questions on if-else statement * Coordinate group discussions * Demonstrate on how to use the if-else statement | * give responses to questions posed * Participate in group discussion * Observe on the demonstration * Practice on how to use the if-else statement | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**  observation |  |
|  | Control Structures (switch statement) | By the end of the session, the trainee should be able to:   1. **describe** the syntax of switch statement 2. **Use** switch statement in code | * Pose questions on switch statement * Coordinate group discussions * Demonstrate on how to use the switch statement | * give responses to questions posed * Participate in group discussion * Observe on the demonstration * Practice on how to use the switch statement | **Refs:**  1. OS/Curr  2.Learning guides  3. Online materials  **Training Aids:**  PC and Projector | **Knowledge**  1. oral questioning  2. written questions  **Skills**  1. observation  2. developed HTML file  **Attitudes**  observation |  |
|  |  | ASSESSMENT | | | | | |  |

**PREPARED BY………………………………………………………….DATE……………………………SIGN…………………….**

**VERIFIED BY…………………………………………………………...DATE……………………………SIGN…………………….**

**APPROVED BY……………………………............................................DATE……………………………SIGN…………………….**