



COURSE ASSESSMENT 2023 FOR GROUP ASSIGNMENT/PRESENTATION
CTE711S COMPILER TECHNIQUES

COURSE DETAILS

Course Code:	CTE711S	Semester:	1
Course Title:	Compiler Techniques		
Lecturers:	Coordinator:	Dr. A. A. Azeta	
Title of Assessment:	Development of a Mini Compiler software using Java		

SUBMISSION

Soft Copy:	<ul style="list-style-type: none">• Students should divide themselves into groups of minimum 4 and maximum 5 per group.• The Assignment should be done as a group, but each student should submit a copy of the documentation in MS Word file on elearning.• Each file should be giving the name and student number (i.e. Steven-2322220911).• All Submissions of documentations must be done on e-Learning on or before 11h59, 28 April 2023.• Date of Group Assignment presentation/defence via Face-to-Face (F2F) Will be 1-5 May 2023.	
Hard Copy:	Not required (If required will be communicated)	
Late Submission:	Late submission will not be entertained without prior approval	
Multiple Hand-ins:	Multiple hand-ins before the due date is allowed but the latest version will be graded.	
Assessment	20%	

Further information

1. **EXTRA MARKS WILL BE AWARDED FOR CRITICAL THINKING, CREATIVE IDEAS AND MOST PRACTICAL APPLICATION**
2. **PLEASE NOTE THAT INABILITY TO EXPLAIN YOUR CODE WILL LEAD TO ALL THE MARKS BEING PEGGED AT ZERO(SEE TEACHING PHYLOSOPHY IN COURSE OUTLINE).**
3. **PLAGARISM WILL NOT BE TOLORATED AND HENCE IF ASSIGNMENTS ARE COPIED OR SHARED, THEN ALL STUDENTS INVOLVED ARE DISQUALIFIED.**

GROUP ASSIGNMENT DETAILS

The Program below is written in V language to find the summation of 3 numbers,
And also calculate and print out temp.

```
BEGIN
INTEG A, B, C, D, E
LET B = A - / C
INPUT A, B, C
temp = <s%*h - j / w - d +*$&;
D = A+B/C
E = G/H-I+a*B/c
WRITE D
WRITEE F;
END
```

Note the following conditions in the above program:

- Words in capital letters are **Keywords**
- Words in small letters are **Identifiers**. Words in single letters from A – Z and a to z are also **Identifiers**
- +, /, *, - are **Operators**
- Equals =, and semi colon ; are **Symbols**
- Any string/line must contain: **Keywords, Identifiers, Operators, or Symbols**
- Symbols such as: %, \$, &, <, >, ; not allowed and would give **Semantic error**
- Two operators must not be combined such as: +* not allowed and would give **Syntax error**, same with other operators that are combined, for example -/, */, *+
- Semi colon ; at the end of a line not allowed and would give **Syntax error**
- Numbers 0,1 to 9 are not allowed and would give **Syntax error**
- The acceptable keywords are: BEGIN, INTEG, LET, INPUT, WRITE, END.
- Misspelling in the keywords such as: WRITEE not allowed and would give **Lexical error**
- Any other character on the keyboard different from all the above will give Syntax error.

- (1) Write a Java program that will go through the following stages of compiler to translate the above program (iteratively) - **line by line**.
- (2) Write a Java program that will go through the following stages of compiler to translate the above program (iteratively) – **all at once**.

Note: Only lines 6 and 7 should go through all the seven (7) stages of compiler:

D = A+B/C and E = G/H-I+a*B/c

The other lines should just check for errors and report the error (if any)

SEVEN STAGES OF COMPILER

- 1) Lexical Analysis (Scanner)
- 2) Syntax Analysis (Parser)
- 3) Semantic Analysis (Syntactic Analysis)
- 4) Intermediate Code Representation (ICR)
- 5) Code Generation (CG)
- 6) Code Optimization (CO)
- 7) Target Machine codes (TMC)