**B.Tech. in Computer Science &Engineering**

**Semester: VII, Academic Year: 2023-24, Term: Odd**

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| **Course Code & Name** | 2CS701 – Compiler Construction |

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| **Sr.**  **No.** | **Title** | **Hour(s)** | **Mapped**  **CLO** |
| 1 | **To implement lexical analyse to recognize all distinct token classes:** use flex/lex tool to recognize all distinct token classes (Data type, Identifier, constant (Integer, Float, Char, String), Operator (Arithmetic, Relational, Assign, Unary +/-, Increment), Single line/Multi-line comments, Special symbol(;,{}())) .  Generate Lexical error reports for invalid lexeme. | 02 | 1,2,4 |
| 2 | **To implement a Recursive Descent Parser Algorithm for the grammar.** | 02 | 1,2,4 |
| 3 | Write a program to find first( ), and follow() set for each non-terminal of given grammar. | 04 | 1,4 |
| 4 | **To Implement Left Recursion derivation removal algorithm** : Eliminate direct and indirect Left recursion from given grammar for LL(1) parser. | 04 | 1,4 |
| 5 | **To implement a calculator in YACC: Syntax Directed Translation**  Extend practical assignment 1 to generate a Symbol Table for identifiers, and label in the code. (Symbol Table columns : Name, Value)  Use YACC to Write a Grammar for multiple expression statements, and apply syntax directed translation for calculator. | 04 | 1,2,4 |
| 6 | **Intermediate Code Generation:** To generate Three Address code for assignment statement | 02 | 1,2,4 |
| 7 | **To implement grammar rules for control statements, and Loop control**. | 04 | 1,2,4 |
| 8 | **To implement a Type Checker.:** Extend experiment 5 to assign Data type to each identifier as per declaration statement. Verify Data type as per each programming construct and report appropriate error message | 02 | 1,2,4 |
| 9 | **To implement Assembly code generator.:** Extend practical 6 to generate an assembly code. (use getReg() algorithm) | 02 | 1,2,4 |
| 10 | **To implement Code Optimization techniques:**  Implement any code optimization technique. | 04 | 1,3,4 |
|  | **Total** | **[30]** |  |