1. **Introduction to Compiler Design:**
   - Modules with Compiler.
   - Characteristics of Good Compiler.
   - Translators: Compiler, Interpreter, Assembler.
   - Phases of Compiler with example.
2. **Lexical Analysis:**
   - The Role of the Lexical Analyzer.
   - Specification of Lexemes.
   - Tokens and Patterns.
   - Recognition of Tokens.
3. **Syntax Analysis:**
   - Grammar, Types of Grammar with Example, Language to Grammar and Vice versa.
   - Ambiguous CFG Grammar and Un-Ambiguous CFG Grammar.
   - Left most derivation, Right most derivation, Parse tree.
   - Restriction of CFG: Elimination of Useless Symbol, Elimination of NULL production, Elimination of Unit Production, Elimination of Cycle.
   - Parser and Types of Parsers.
   - Issues of CFG for the top-down parser: Left Recursion, Indirect Left Recursion, Left Factoring.
   - Calculate of FIRST (), FOLLOW ()
   - Construction of LL(1) Parsing Table