# Lesson Teaching Plan

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| **Subject:** Compiler Design | **Branch:** Computer Application |
| **Semester:** 5th Sem | **Faculty name:** Bighnaraj Naik |

| Module | Topic | No. of classes |
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| 1 | Introduction to Compiling: Compilers, Analysis of the source program | 1 |
| | The phases of a compiler | 1 |
| | Cousins of the compiler, The grouping of phases, Compiler-construction tools | 1 |
| 2 | Lexical Analysis: The role of the lexical analyzer | 1 |
| | Input buffering | 1 |
| | Specification of tokens | 1 |
| | Recognition of tokens, A language for specifying lexical analyzers, Finite automata | 1 |
| | From a regular expression to an NFA, Design of a lexical analyzer generator, Optimization of DFA-based pattern matchers | 1 |
| 3 | Syntax Analysis: The role of the parser, Context-free grammars | 1 |
| | Writing a grammar, Top-down parsing, | 1 |
| | Bottom-up parsing, Shift reduce parsing | 1 |
| | Operator-precedence parsing | 2 |
| | Top-down parsing : Recursive descent parsing | 1 |
| | Predictive parsing | 3 |
| | Introduction to LR parsers | 1 |
| | Simple LR parser | 3 |
| | Canonical LR parser | 3 |
| | Look-a-head LR parser | 3 |
| | Using ambiguous grammars, Parser generators | 1 |
| 4 | Intermediate Code Generation:<br>Intermediate languages, Declarations, Assignment statements, | 1 |
| | Boolean expressions, Case statements | 1 |
| | Back Patching, Procedure calls | 1 |
| 5 | Code Optimization: Introduction, The Principal sources of optimization | 1 |
| | Optimization of basic blocks, Loops in flow graphs | 1 |
| | Introduction to global data-flow analysis, Iterative solution of data-flow equations, | 1 |
| | Code-improving transformations, Dealing with aliases, Data-flow analysis of structured flow graphs | 1 |
| | Efficient data-flow algorithms, A tool for data-flow analysis, Estimation of types, Symbolic debugging of optimized code. | 1 |
| 6 | Syntax-Directed Translation:<br>Syntax-directed definitions, Construction of syntax trees | 1 |
| | Bottom-up evaluation of S-attributed definitions, L-attributed definitions, | 1 |