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## RGPV B.Tech – CSE 5th Semester Syllabus

### CS-502: Compiler Design

#### Unit I: Introduction to Compilers

- Structure of compiler, phases of compilation
- Lexical analysis, syntax analysis, semantic analysis
- Intermediate code generation, code optimization, code generation

#### Unit II: Lexical Analysis

- Role of lexical analyzer, input buffering
- Regular expressions, finite automata, lexical analyzer generator

#### Unit III: Syntax Analysis

- Context-free grammars, parsing techniques
- Top-down parsing, bottom-up parsing
- LL(1), LR(0), SLR, LALR parsers

#### Unit IV: Semantic Analysis and Intermediate Code

- Syntax-directed translation, type checking
- Intermediate representations: three-address code, syntax trees
- Symbol tables and scope management

#### Unit V: Code Optimization and Generation

- Basic blocks and flow graphs
- Optimization techniques: loop optimization, DAGs
- Target code generation, register allocation



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